CLINICAL EVALUATION OF "MANTHARAKASA LEHIYUM" IN THE MANAGEMENT OF SWASAKASAM (BRONCHIAL ASTHMA)

The dissertation submitted by,

Dr.P.Muthuselvi

Under the guidance of

Prof.Dr.N.Periasamypandian.M.D.(S),

H.O.D, Department of MARUTHUVAM,

National Institute of Siddha, Chennai-47.

Dissertation submitted to

THE TAMILNADU DR.M.G.R.MEDICAL UNIVERSITY

CHENNAI-600032

In partial fulfillment of the requirements

For the award of the degree of

DOCTOR OF MEDICINE (SIDDHA)

BRANCH I– MARUTHUVAM DEPARTMENT

2013-2016

NATIONAL INSTITUTE OF SIDDHA

CHENNAI - 600047.

NATIONAL INSTITUTE OF SIDDHA

CHENNAI – 600047

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY, CHENNAI – 32

A STUDY ON

SWASA KASAM

(DISSERTATION SUBJECT)

For the partial fulfillment of the

Requirements to the Degree of

DOCTOR OF MEDICINE (SIDDHA)

BRANCH I– MARUTHUVAM DEPARTMENT

2013-2016

BONAFIDE CERTIFICATE

Certified that I have gone through the dissertation submitted by Dr.P.Muthuselvi (Reg.no 321311205), a student of final year M.D(S), Branch-I, Department of Maruthuvam, National Institute of Siddha, Tambaram sanatorium, Chennai-47, and the dissertation work has been carried out by the individual only. This dissertation does not represent or reproduce the dissertation submitted and approved earlier.

Place : Chennai-47

Date:

Head of the Department,
Department of Maruthuvam,
National Instiute of Siddha,
Chennai-47.

ACKNOWLEDGEMENT

ACKNOWLEDGEMENT

I first of all express his deep sense of gratitude to the **Almighty** for all his many fold of mercies.

I wish to express gratitude and acknowledgement to the **Secretary, Ministry of AYUSH,** Health & family welfare, New Delhi.

I wish to express my sincere thanks to **Dr.S.Geethalakshmi, M.D, Ph.D,** Vice chancellor, The Tamilnadu Dr.M.G.R. Medical University, Chennai.

I express my sincere thanks to **Prof.Dr.V.Banumathi.M.D(S)** Director, National Institute of Siddha, Chennai-47, for arranging the facilities for successful completion of my project.

I would like to express my thanks to our respectable **Prof.Dr.N.Periasamypandian.M.D(S),** Associate professor and Head of the department, Department of Maruthuvam, National Institute of Siddha, Chennai-47, for his valuable guidance to complete my dissertation.

I express my grateful thanks to **Dr.S.Mathivanan.M.D(S),** Associate professor, Department Maruthuvam, National Institute of Siddha, Chennai-47 for his guidance for this study.

I express my gratitude to **Prof.Dr.K.Manickavasagam M.D(S),** Former Director and Head of the department, Department of Maruthuvam, National Institute of Siddha, Chennai-47, for motivating and encouraging this work.

I express my sincere thanks to **Prof. Dr.S.Mohan M.D(S),** Former Director i/c and Head of the department, Department of Maruthuvam, National Institute of Siddha, Chennai-47, for granting permission to undertake a study in this dissertation topic and also for providing all the basic facilities in order to carry out this work.

My deep sense of gratitude **Dr.T.Lakshmikantham.M.D(S),** Lecturer, Department of Maruthuvam, National Institute of Siddha, Chennai-47, for her memorable support and encouragement in carrying out this work.

My deep sense of gratitude **Dr.H.Vethamerlinkumari.M.D(S),** Lecturer, Department of Maruthuvam, National Institute of Siddha, Chennai-47, for her ceaseless encouragement and most valuable guidance in this dissertation study.

My deep sense of gratitude **Dr.H.Nalinisofia.M.D(S)**, Lecturer, Department of Maruthuvam, National Institute of Siddha, Chennai-47, for her moral support and for giving valuable suggestion to do this study.

I express my grateful thanks to **Dr.M.Rajasekaran.M.D.(S),** Head of the department, Department of Gunapadam, National Institute of Siddha, Chennai-47, for his skillfull help in collection and preparing the trial drug.

I express my thanks to **Dr.D.Aravind.M.D(S), M.Sc,** Associate professor Dept.Medicinal botany, National Institute of Siddha, Chennai-47, for his moral support and guidance for herbal drugs authentication.

I express my sincere thanks to **Mr.M.Subramaniyan.M.Sc**, Senior research officer (Statistics), National Institute of Siddha, Chennai-47, for his guidance in doing statistical analysis.

I express my sincere thanks to **Dr.Sangeetha.M.B.B.S**, Lecturer, Modern medicine, National Institute of Siddha, Chennai-47, for her valuable support during this work.

I wish to thank **Dr.A.Muthuvelu.BSMS, M.Sc, Ph.D,** (Biochemistry), Lecturer in National Institute of Siddha, Chennai-47, for giving permission for doing biochemical analysis of the trial drug in our institute lab.

I wish to thank **Dr.P.Sathiyarajeswaran**, Assistant Director (Scientist 2) i/c and **Sreemathi.R.Shakila**, Research officer (Chemistry), Siddha Central Research Institute, Arumbakkam Chennai-106 for their helping in Physicochemical analysis and HPTLC report.

I also thank **Mr.Sridhar** and other technicians of clinical pathology laboratory and Biochemistry department, National Institute of Siddha, Chennai-47,

I wish to thank all library staffs, National Institute of Siddha, Chennai-47, for their help in literature collection.

I express my heartful thanks to **My beloved Parents, Sister, Brother and Friends** for their continous help and encouragement to do this dissertation work.

CONTENTS

INTRODUCTION

INTRODUCTION

Siddha system of medicine is one of the ancient system contemporaneous with those of the submerged lands, Egyptian, Mesopotamian, Chinese, and Grecian medicines. The ancient Siddhars knew the scientific truth by meditation and worked wonders through their mental force.

The Siddha system is based on a combination of ancient medicinal practices and spiritual disciplines as well as alchemy and mysticism. As herbs, metals, minerals, animals and its derivatives are the sources of Siddha medicines.

This system endorses safest medical care. Siddha is the only system comprising 64 varieties of medicines i.e. 32 classifications of internal medicines and 32 classifications of external medicines.

மாறுபாடு இல்லாத உண்டி மறுத்துண்ணின்
ஊறுபாடு இல்லை உயிர்க்கு.

-திருக்குறள்

According to Siddha, “changes in diet and life style, Environmental factors and congenital or genetically inherited” are the key factors predisposed for the instigation of each disease via disturbing the equilibrium status of the vital forces termed Vali, Azhal, Iyam.

மிகினும் குறையினும் நோய்செய்யும் நூலோர்
வளிமுதலா எண்ணிய மூன்று.

-திருக்குறள்

Noi naadal (to diagnose the affected disease) and Noi mudhal nadal (to find out the root cause of the disease) are the crucial approaches employed in Siddha in the process of diagnosis therefore permanent remedy is also achievable since the treatment is focused to cure the disease and root cause of the disease.

“Envagai thervu” is the diagnostic tool followed in Siddha for arriving right diagnosis.While treating the patient, special concern will be paid in *Yakkai* (Body constitution), *Thinai* (sort of land where the patient living) and *Paruvakaalam* (Season) for the effectiveness of the treatment.

Since the disease occurs due to the derangement of three life factor Siddhars have classified the disease accordingly .They classified as vatha disease 80, pitha disease 40, kapha disease 21. Swasakasam is one among the kapha disease.

According to Siddha system of medicine, cause of any disease is attributed to the derangement of humours. Likewise, in the case of asthma, the disease is attributed to the derangement of kabam humour. The amplified kabam humour alone or otherwise associated with other deranged humours, either vatham or pitham affects the throat, nose, respiratory airways and lungs.

Bronchial asthma is a heterogeneous pulmonary disorder characterized by recurrent episodes of cough, breathlessness and wheezing, which may resolve spontaneously or after the use of bronchodilator medication.

The global prevalence of asthma is anticipated to be approximately 4.5 per cent. There are about 334 million patients with asthma affecting all age groups, across the world. In the Indian study on Epidemiology of asthma, respiratory symptoms and chronic bronchitis in adults (INSEARCH) a survey conducted in two phases across 16 centers in India, the prevalence of asthma in adults was 2.05 per cent, with an estimated burden of 17.23 million.

In Siddha literature, various herbal drugs either single or compound and herbo-mineral drugs are mentioned for the management of bronchial asthma.

In the text, Agathiyar vaithiya kaviyam-1500 **"Mantharakasa lehiyum"** a Siddha formulation has been specifically indicated for SWASAKASAM (Bronchial asthma). The main ingredients of the above said are well known for its Expectorant, Anti spasmodic, Carminative, Stimulant**,** Tonic, Bronchodilator, Anti-oxidant, Anti-inflammatory and Digestive activities.

The preparation is simple, easily available and cost effective. The above said drug formulation, has not undergone any clinical trial. So, it is proposed to carry an open clinical trial to find out its efficacy in Swasa kasam.

AIM AND OBJECTIVES

AIM AND OBJECTIVES

AIM

Clinical study on "**SWASAKASAM**" (Bronchial asthma) and the drug of choice is **MANTHARAKASA LEHIYUM** (Internal).

OBJECTIVES

1) Primary Objective

To study the Siddha formulation **MANTHARAKASA LEHIYUM** (Internal) in the management of "**SWASAKASAM** (Bronchial Asthma).

2) Secondary objective

1. To study other cofactors related to the disease like age, occupation, socioeconomic status.
2. To study the comorbid factors related to the disease such as gastroesophageal reflux disease (GERD), rhinosinusitis, apnea and anxiety etc.

REVIEW OF LITERATURE

SIDDHA ASPECT

SIDDHA ASPECT

As per Yuki Vaidhya Chinthamani,

Veru Peyargal (Synonyms)

Izhuppu Irumal

Swasa Irumal

Isivu Irumal

Eyal (Definition):

Severe cough with or without expectoration, Expiration is like a hiss of a serpent, Sense of heat in both nostrils, Frequent hemming, Indigestion and Flatulence, Hoarseness of voice.

Noi Varum Vazhi (Etiology)

Yugi Vaidhya Chinthamani Says,

“வேகின்ற வதிகமாம் புகையி னாலும்
மீறுகின்ற பானத்தால் மிக்குந்தானே” (690)

”பானத்தால் பரமாக்கினி மிகுக்கை யாலும்
பாரமா மாமிசங்கள் புசிக்கை யாலும்
தானத்தாற் சஞ்சாரந் தவிர்க்கை யாலும்
சரிப்படாப் பதார்த்தங்கள் புசித்த லாலும்
தீனத்தாற் புசியாம லிருக்கை யாலும்
சேயிழையார் மேலின்பஞ் சிதைவதாலும்
மானத்தால் மாதுக்க மடைத தாலும்
மதத்தாலுஞ் சுவாசமது மருவுங் காணே”. (691)

Diet and habits:

- Exposed to excessive smoke
- Increased acidity
- Intake of allergy inducing food
- Starving on hunger
- Lack of Exercise
- Excessive intake of cold water, food items
- Excessive intake of non-vegetarian diet
- Excessive Mental Stress
- Taking improperly cooked food

“காணவே தேவதைக்குப் பிரித்த பண்டம்
களவாடித் தின்றாலுங் கணவன் றன்னைத்
தோணவே நிந்தையைச் சொன்ன தாலும்
சுசியான பதார்த்தமெச்சில் பண்ணி னாலும்
வேணவே ஒருவர்செய்த நன்றி தன்னை
மிகமறந்து கொடுமைகடான் விளம்பு வோர்க்கும்
பேணவே சபைதனிலே சொன்ன பேச்சு
பிரண்டோர்க்குங் காசமது பிறக்குந் தானே” (692)

Mental stress due to:

- Stealing foods which were offered to GOD
- Cursing life partner
- Persons who don’t keep his words
- Ingratitude

Madhava Nidhanam @ Roga Vrichayam say’s

- Excessive Smoke
- Controlling reflexes like sneezing and Cough.
- Food enters into the larynx while swallowing
- Taking improperly cooked food

Siddha Maruthuvam [Pothu] Says,

- Exposure to cold weather
- Over strain in hot climate
- Intaking of cold and hot foods
- Singing/speaking in high pitched voice
- Inhalation of pleasant / irritable odor.

Anubava Vaitheya Deva Ragaseyam Says,

- Elevation of vital humours such as Vatham and Kabam
- Persistence fever
- Excessive Cold
- Anemia due to toxicity
- Air pollution of dust, husk etc…
- Trauma on vital organs.

Murkurigal (Preliminary Signs)

- Sore throat
- Redness of throat
- Pricking sensation in the throat
- Low pitched voice
- Running nose
- Aspiration of hot foods

நோய் எண்: Noi Enn (Classification)

Yugi Vadihya Chindamani says,

தானான காசமது பன்னிரெண் டாகுந்
தாக்கான மந்தார காசத் தோடு
பானான பக்கமந் தார காசம்
பாங்கான சுடர் காசம் வாத காசம்
பேனான பித்தமாங் காசத் தோடு
பேர்பெரிய **சுவாசகா சத்**தோ டொக்க

ஏனான இரத்தமாங் காசத் தோடு
இரைப்பான சிலேத்மகா சந்தா னாமே. (689)

ஆகின்ற பீனிசத்தின் **சுவாச காசம்**
அழிவாத பித்தத்தின் காச மாகும்
போகின்ற பித்தசிலேட்ம காசந் தானே
புகழ்பெரிய சொந்தமாங் காசத் தோடு
தேகின்ற காசமது பனிரெண் டாகுந்
தெளிவாக இதனுடைய செயலைக் கேளே. (690)

Swasa kasam is one among the twelve types of Kasam.

The Twelve types are,

1. Mandhara Kasam
2. Pakka Mandhara Kasam
3. Sudar Kasam
4. Vatha Kasam
5. Pitha Kasam
6. **Swasa Kasam**
7. Ratha Kasam
8. Silethuma Kasam
9. Peenisa Kasam
10. Vathapitha Kasam
11. Pitha silethuma Kasam
12. Thontha Kasam

T.V.Sambasivam Pillai Dictionary says

There are twenty types of kasam

1. **Swasa kasam**
2. Manthara kasam
3. Ratha kasam
4. Vadha kasam
5. Pitha kasam
6. Vali kasam
7. Silethuma kasam
8. Thontha kasam
9. Neela kasam
10. Bala kasam
11. Eelai kasam
12. Sudar kasam
13. Pakka kasam
14. Pakka manthara kasam
15. Pennisa kasam
16. Naadha kasam
17. Virana kasam
18. Karppa kasam
19. Adaippu kasam
20. Gunma kasam

Tamilaga Siddha Vaitheya Gurugulam Says,

There are twelve types. Those are,

1. Vatha Kasam
2. Pitha Kasam
3. Kaba Kasam
4. Vatha Kaba Kasam
5. Pitha Kaba Kasam
6. Thontha Kasam
7. **Swasa Kasam**
8. Mandhara Kasam
9. Patcha Mandhara Kasam
10. Ratha Kasam
11. Peenisa Kasam
12. Sudar Kasam

Vaidya sara sangraham classifies as

1. Manthara eraippu
2. **Swasa kasam**
3. Pachai udambi ledutha swasakasam

SWASA KASAM

Kuri Gunangal (Signs and Symptoms)

Siddha literatures described the signs and symptoms of Swasa kasam as follows,

Yugi Vaidhya Chinthamani Says,

"வண்மையாய் கோழை கட்டி எருமி வீழும்
மாநாகம் போலவே வாங்குஞ் சுவாசம்
திண்மையாச் செருமலுண்டா மடிக்க டிக்குச்
சீரண மிலாமலே வயிறு மூதும்
நண்மையாய் நாசியது தணல் போலாகும்
நலிந்துடம்பு வற்றிவருங் குரலுங் கம்மும்
உண்மையா யுண்ணாக் கிலுாறுங் கேணி
யுழந்துமே சுவாசகா சத்தி னொப்பே."

Characteristic of swasa kasam According to Yugi Vaidhya Chinthamani severe cough with or without expectoration, Expiration is like a hiss of a serpent, frequent hemming, sense of heat in both nostrils, emaciation, Hoarseness of voice, indigestion and flatulence.

Uyir Kakkum Siddha Maruthuvam @ Athma Ratchamirtham Says,

Characteristics of Swasa kasam as per Uyir kakkum siddha maruthuvam as follows Dryness of the skin, fatigue, vomiting due to indigestion, headache, constipation with sweating, cough, fever, chillness and pedal edema.

Tamilaga Siddha Vaitheya Gurugulam Says,

Breath sound like hissing of snake, cough with expectoration of excess amount of sputum, indigestion, emaciation, low pitched voice, viscous secretion in uvula, flatulence, dryness and heat sensation in the nose, dyspnoea, wheezing and hysteria.

Mukkura Verupadugal (Pathology)

The disease occurs due to the derangement of three life factor (Vatham, Pitham, Kabam). Siddhars have classified as Vatha disease 80, Pitha disease 40, and Kaba disease 21. Likewise, in the case of asthma, the disease is attributed to the derangement of kabam humour.

The amplified kabam humour alone or otherwise associated with other deranged humours, either vatham or pitham affects the throat, nose, respiratory airways and lungs.

This is clearly indicated by Theraiyar as,

“கபத்தினை யன்றி காச சுவாசம் காணாது” -தேரையர்

1. Excess of Kaba in the respiratory organs affects the Melnooku kal and uyir kal and so the vayu is not able to reach the terminal points of respiration which producing gasping and labored breathing.

2. Some authors said that the disease is caused by deranged Vatha. This thought is also acceptable because the destruction of Vayu in the respiratory tract is abnormally present.

3. Excessive intake of Pitha prompting diet induces Pitha Kutram. This type of Pitha produces more heat and this heat goes to head resulting in sneezing, running nose, heaviness of head and neck and also induces formation of water vapors in the lung and causing

narrowing of air passage, which leads to the onset of the disease. This indicated as, the changes in the diet and deeds which elevate Vatha and Kaba produce the clinical symptoms of Swasa Kasam.

In Uyir Nilaigal, Anagatham (chest) which is the residence of Udhanan (melnokku kal) and Pranan (Uyir kal) is deranged.When Pranan, the primary vayu is affected it lead to difficulty in breathing and involvement of Udhanan leads to cough and sneezing. Involvement of Kirukaran leads to running nose, cough, sneezing.

Involvement of Devathathan leads to tiredness. Involvement of Samanan causes inability to control the other Vayus and causes loss of appetite.Involvement of Sadhaga pitham leads to sluggishness. In Kaba, the derangement of Avalambagam leads to cough, wheezing.

In the seven Udal Thathus, Saaram, Senneer are affected which leads to lethargy and depression. In severe cases Oon and Kozhuppu are also affected leads to symptoms of emaciation and body pain.

Piniyari Muraimai (Diagnosis)

The way of diagnosis is very important by which a physician can deal the disease, by which he can rule out the cause of the disease which is the main thing to be treated.

Thiruvalluvar Said,

நோய் நாடி நோய் முதல்நாடியது தணிக்கும்
வாய்நாடி வாய்ப்பச் செயல்.

-திருக்குறள்

Piniyari muraigal (Method of Diagnosis) is based upon four main principles,

1) Poriyal Arithal(Inspection)
2) Pulanal Arithal (Palpation)
3) Vinaathal (interrogation)
4) Enn vagai thervugal

Physicians ‘pori’ and ‘pulan’ are used as tools for examining the ‘pori pulan’ of the patient.

The above principles correspond to the methodology of 1.Inspection 2.Palpation 3. Interrogation in modern medicine in arriving a clinical diagnosis of the disease.

1. **Poriyal Arithal**

Porigal are the five organs of perception. They are Skin, Tongue, Eyes, Nose, and Ears. Poriyal arithal is examining the Pori of the patient by the Pori of the physician. In Swasa kasam, it is as follows,

Mei (Skin)	:	Normal
Vai (Tongue)	:	Excessive Salivation
Kann (Eye)	:	Diminished vision
Mookku (Nose)	:	Running nose or nasal block
Sevi (Ear)	:	Normal

2. Pulanal Arithal

Pulangal are the five objects of senses. In Swasa kasam, it is as follows,

Ooru (Tactile sensation)	:	Warmth
Oosai (Hearing)	:	Normal
Ozhi (Visual)	:	Normal
Suvai (Taste Sense)	:	Normal
Naatram (Smell sense)	:	Altered or absent due to Running nose and inflammation of nasal mucosa.

3. Vinadhal

The influence factors such as Name, Age, Family history, occupation, Socio-economic status, History of allergies related to food, seasons, deeds, etc.

Ivagai Nilangal (Geographical Distribution)

Study of Ivagai Nilangal is very important since geographical distribution plays a vital role in altering Mukkutram and produce disease which is peculiar to that area.

(i) Kurinchi (Mountains range and its surroundings)

”குறிஞ்சி வருநிலத்திற் கொற்றமுண்டி ரத்தம்
உறிஞ்சி வருசுரமு முண்டாம்-அறிஞரைக்
கையமே தங்குதரத் தாமைவல்லை யுங்கதிக்கும்
ஐயமே தங்கு மறி”.

-பதார்த்த குண சிந்தாமணி.

In Kurunchi Nilam, people are affected by fever that results in blood dyscariasis, disease of spleen and liver, and **prevalence of kaba disease** is more in Kurunchi nilam.

(ii) Mullai (Pastoral area of the forests and its surroundings)

“முல்லை நிலத்த மைய முந்நிரை மேவினுமவ்
வெல்லை நிலைத்த பித்த மெய்துறுங்காண்-அல்லவெனின்
வாதமொழி யாததனுண் மன்னு மவைவழி நோய்ப்
பேதமொழி யாதறைப் பின்பு”

-பதார்த்த குண சிந்தாமணி.

In Mullai Nilam, the pastoral land of the forest is the birth place of many pitha diseases and diseases like abdominal colic and other vatha diseases also occur.

(iii) Marudham (The fertile river bed and its surroundings)

“மருதநிலம் நன்னீர் வளமொன்றைக் கொண்டே
பொருதநில மாதிய நோய் போக்குங்-கருதநிலத்
தாறிரதஞ்சூழ வருந்துவரென் றாற்பிணியெல்
லேறிரதஞ் சூழ்விக்கு மில்”

-பதார்த்த குண சிந்தாமணி.

Marudham the agricultural land is fertile with very good water which will drive out the diseases of all the three humors. The nourishing food with all the tastes never allows such diseases to occur.

(iv) Neithal (The coastal region and its surroundings)

"நெய்தனில மேலுவர்ப்பை நீங்கா துறினுமது
வெய்தனில மேதங்கு வீடாகும்-நெய்தல்
மருங்குடலை முக்காக்கி வல்லுறுப்பை வீக்கும்
கருங்குடலைக் கீழிறக்குங் காண்" -பதார்த்த குண சிந்தாமணி.

Though Neithal Nilam has the dominant taste of Uvarppu (salt), it is the place of Pitha Vayu. The people who dwell here are susceptible to odema due to Kaba, Silapatha Rogam (Filariasis), Kudalanda Viruthi (Hernia).

(v) Paalai (Arid-Deserts and its surroundings)

"பாலை நிலம் போற் படரைப் பிறப்பிக்க
மேலைநில மீயாது விரித்தற்கு – வேலைநில
முப்பிணிக்கு மில்லம் முறையே யவற்றகலாம்
எப்பிணிக்கு மில்ல மஃதெண்"

-பதார்த்த குண சிந்தாமணி.

The Palai Nilam is the birth place of all the disease caused by the derangement of Vatha, Pitha and Kapham. From Ivagai Nilangal we understood that kapha disease is predominant in kurinchi Thinai.

4. Enn vagai thervugal: (Eight diagnostic Tools)

It is the unique diagnostic tool in Siddha system of Medicine. The following lines reveal this as follows.

"நாடிஸ்பரிசம் நாநிறம் மொழிவிழி
மலம் மூத்திரமிவை மருத்துவ ராயுதம்"

-நோய் நாடல் நோய் முதனாடல்

"மெய்க்குறி நிறந்தொனி விழி நாவிருமலம் கைக்குறி"

- நோய் நாடல் நோய் முதனாடல்

The diagnostic value of EN VAGAI THERVUGAL is specific to Siddha system of medicine and presumes the vitiated dhoshas in the patients.

Enn Vagai thervugal are,

a. Naa (Tongue)
b. Niram (Colour of the skin)
c. Mozhi (Speech)
d. Vizhi (Eye)
e. Malam (Motion)
f. Moothiram (urine)
g. Sparisam (Palpation)
h. Naadi (Pulse)

1. Naa

It is observed for its color, presence of ulcer, coating, etc.

2. Niram

It's observed for its Color of the skin, conjunctive. In Swasakasam, Niram is affected when the patient suffer from allergic skin lesions and anaemia etc.

c. Mozhi

It's observed for its character of speech, sound. In Swasa kasam mode of speech may be emotional or difficulty in speech, low pitched voice, wheezing sound is heard.

d. Vizhi

It's observed for its colour, vision power, lacrimal secretion. In Swasa kasam, the eyes may have itching and burning sensation

e. Malam

Its observed for its Consistency hard or semisolid or diarrohea, undigested food, fluid resembling the water used to clean meat, color, frothy, dysentery, bloody, pus, mucous, smell, frequency of defecation, constipation, reduced or increased stool content, lower abdominal pain during defecation are noted.

f. Siruneer

Its observed for its Colour – yellow, black, white copper colored, mixed color, color of fumes, Smell – smell of fire, honey, sweet odours, fragrance of flowers, fruity odour of deer flesh, frothy or not, frequency and quantity are noted.

g. Sparisam

By Sparisam, the present of temperature and tenderness can be observed.

h. Naadi

Naadi is the very important tool for diagnosis and prognosis of the disease.

Genesis of Naadi

"கரிமுகனடியை வாழ்த்திக் கைதனில் நாடிபார்க்கில்
பெருவிரலங்குலத்தில் பிடித்தடி நடுவே தொட்டால்
ஒரு விரலோடில் வாதமுயர் நடுவிரலிற் பித்தம்
திருவிரல் மூன்றிலோடில் சேத்தும நாடிதானே"

- அகத்தியர் நாடி

Naadi is responsible for existence of life and can be felt one inch proximal to the wrist on radial side by means of palpitations with the tips of index, middle and ring fingers corresponding vatham, pitham, kapham respectively.The three humors vatham, pitham and kabam exisits in the ratio 1: ½: ¼ normally. Derangement in these ratios leads to various disease entities.

Naadi Nadai in Swasa kasam

Iya azhal

"கதிப்பான சேத்துமத்திலுட்டிணங் கூடில்
கலந்தகுணஞ் சயமிருமல் **சுவாசகாசம்**
மதிப்பான கோழைரத்தம் விப்புருதியுடனே
வளர்நாசி காபீடமிருத் ரோகங்"

- சதக நாடி.

Pitha Naadi

"இடமான சேத்துமத்தில் பித்த நாடி
எழுந்தணுகில் விடமுடனே வீக்கமுண்டாம்
திடமான குளிர் காய்ச்சல் மஞ்சள் நோவுந்
தேகத்தி லுளைச்சலிளைப் பிருமல் வாந்தி
விடமான நெஞ்சடைப்பு **சுவாசம்** விக்கல்"

- சதக நாடி.

Vatha Kapha Naadi

"பாங்கான வாதத்தில் சேத்தும நாடிப்
பரிசித்தால் திமிர் மேவு முளைச்சலாகும்
தீங்கான இருமலுடன் சந்நி தோடம்
சேர்ந்த விடம் வெடிசூலை யிருத் ரோகம்
வாங்காத ஈளை மந்தார காசம்
வலியுடனே புறவீச்சுயுள் வீச்சு வீக்கம்
ஓங்காணுஞ்சுர முடனே **சுவாச காசம்**
உண்டாகும் வெகு நோய்க்கு முறுதிதானே".

- சதக நாடி.

Iya Naadi

"தானமுள்ள சேத்து மந்தானிளகில் வெப்பு
சயமீளை யிருமல் மந்தார காசம்
ஈனமுறுஞ் சந்நிவிட தோடம் விக்கல்
யிருத்ரரோகங் கரப்பான் விரண தோடம்
மானனையீர் சூலைதிரள் வியாதி வீக்கம்
வருஞ்சக்தி **சுவாச** நெஞ்சடைப்பு தூக்கம்"

- சதக நாடி.

Iya Vayu

"தொந்தித்த சேத்துமத்தில் வாயுகூடித் தொடர்ந்த
குன்மம் நெஞ்சடைப்பு **சுவாசகாசம்**
வந்தித்த குரல்தனிலே உறுத்த லீளை
வழுவழுப்பு நீருறல் மலத்தி சீதம்" - சதக நாடி

Hence the Naadi nadai in swasa kasam is Iya azhal, Pitham, Vatha Kapham, Iyam and Iya Vayu.

Nei Kuri

Neikuri is a prognostic tool in Siddha system of Medicine. For this examination first urine is collected in the early morning in a clear wide mouthed glass dish or China clay container and is subjected to analysis of "Neerkkuri and Neikkuri" within one and a half an hour. Prior to the day of urine examination the patient is instructed to take a balanced diet and quantities of food must be proportionate to his routine intake.

"அருந்துமாறி ரதமும் அவிரோதமதாய்
அஃகல் அலர்தல் அகாலவூன் தவிர்ந்தழற்
குற்றளவருந்தி உறங்கி வைகறை
ஆடிக்கலசத் தாவியே காது பெய்
தொருமுகூர்த்தக் கலைக்குட்படு நீரின்
நிறக்குறி நெய்க்குறி நிருமித்தல் கடனே"

-சித்த மருத்துவாங்கச் சுருக்கம்.

After collecting the urine in a wide cleaned glass bowel a drop of gingelly oil is dropped into it which is kept under sunlight in a calm place. The derangement of the three dhoshas can be diagnosed by the mode of spread of gingelly oil on the urine surface.

"அரவென நீண்டினஃகே வாதம்"
""ஆழிபோற் பரவின் அஃதே பித்தம்"
"முத்தொத்து நிற்கின் மொழிவதென் கபமே"

-நோய் நாடல் நோய் முதனாடல்.

If oil spreading like a snake indicates derangement Vatham. If oil spreading like a ring indicates derangement Pitham. If oil spreading like a pearl indicates derangement Kapham

"அரவிலாழியல் ஆழியில் அரவும்
அரவில் முத்தும் ஆழியில் முத்தும்
தோற்றில் தொந்த தோடங்களாமே"

-நோய் நாடல் நோய் முதனாடல்

When oil spreads like snake and ring, ring and snake, snake and pearl, ring and pearl indicates Dhondha Dhosham. (Dhondham – Combination of two)

7. MUKKUTRA NILAIGAL

VATHAM

Pranan

Pranan start from moolatharam and comes through the nostril and responsible for respiration in the ratio of 8:12. In Swasa kasam, this vayu is affected leading to difficulty in breathing.

Abanan

It starts from swathittanam and descents down. It responsible for excretion of urine and faeces. In some patients of Swasa kasam, Abanan is affected resulting in Constipation.

Viyanan

It arises from the shoulder and goes through all the 72,000 nerves and responsible for movement of the body, appreciates the sense of touch, help to take the essence of the food to the strategic points the body and guards the body.

Udhanan

It starts from umbilical region (Udharakkini) and its main function is generation of speech and distributes the saaram equally to all tissues. In Swasa kasam, this vayu is affected resulting in low pitched voice due to difficulty of breathing.

Samanan

Samanan starts from the umblicial cord and spread out upto the lower limbs and responsible for the balance of other four vadha and digestion. In Swasa kasam, this vayu is affected since it cannot control the other vayus.

Nagan

It is responsible for higher intellectual function, hearing, thinking etc. it causes opening and closing of eye lids.

Koorman

It starts from mind and causes winking of the eyelids, yawning and closure of mouth. It gives strength and helps to visualize things and causes lacrimal secretion.

Kirugaran

It lies in tongue and causes salivary and nasal secretion, sneeze reflex, cough reflex and increase the appetite. It makes to concentrate on one thing. In Swasa kasam, this vayu is affected and causing running nose, sneezing, excessive cough and loss of appetite.

Devathathan

Laziness, occular movement and human passions are attributed to this vayu. In Swasa kasam, this vayu is deranged causing emotional stress and insomnia.

Dhananjeyan

It functions from the nose and it is responsible for the bloating of the body after death and also for the foul smell. After 3rd day of death it escapes through the head.

PITHAM

Anal pitham

It lies between the stomach and the intestine. It causes digestion and dries up moist ingestion substances. In Swasa kasam, most of the patients complain loss of appetite and indigestion.

Ranjagam

This fire lies in the stomach, where it helps in the absorption of food materials and finally it promotes the absorbed nutrients and gives red colour to the chyme and produces blood into the circulation.

Sadhagam

It resides in the heart and executes the day to day activities according to the consciousness of the person. In Swasa kasam most of the patients complain restlessness, breathlessness.

Aalosagam

It resides in both eyes and is responsible for clear vision.

Prasagam

It resides in skin and gives complexion and brightness to skin. In Swasa kasam, some patients may have allergic skin lesions.

KAPHAM

Avalambagam

It lies in lungs and helps in respiration .it controls the functioning of other four types of kapham and equilibrium as well as the heart. In Swasa kasam patients, due to disarrangement of Avalambagam, will occur and causes tightness of chest, cough, wheezing and difficulty in breathing.

Kilethagam

It resides in the stomach and moistures the food materials making them soft and thereby helps in digestion process. In this disease, some patients have indigestion.

Pothagam

Resides in the tongue and helps to realize the taste of the consuming food.

Tharpagam

Sustaining in the head and gives refrigerant effect to cool the eyes and other sense organs. In some patients of Swasa kasam, Tharpagam is affected resulting in Burning sensation.

Sandhigam

It resides in the joint and helps in the free and easy movements of joints.

UDAL KATTUGAL

Saaram (Chyle):

It strengthens the body and mind. It is deranged in Swasa kasam due to loss of appetite causing tiredness in the body and mind.

Senneer (Blood):

It is responsible for knowledge, strength, boldness and complexion in a person. In Swasa kasam it is affected resulting in general weakness of the body.

Oon (Muscles):

It gives the shape to the body according to the physical activity and nourishment of bone growth.

Enbu (Bone):

It forms the frame to the body and supports it to stand erect. It protects soft organs of the body and it also responsible for postures and movement of the body.

Kozhuppu (Adipose tissue):

It gives lubrication to the joint and other parts of the body to function smoothly.

Moolai (Bone marrow):

It resides the medulla of the bone and gives strength and softness to it.

Sukkilam / Suronitham (sperm or ovum):

It is responsible for reproduction.

LINE OF TREATMENT:

In Siddha system of medicine Siddhar's follow different line of treatment for different disease. The deranged humour, primarily kabam and vatham is normalized by giving emetic or purgative. The line of treatment of Swasakasam consists of the following.

1. Kalichal Maruthuvam	–	To bring the dhoshas in equilibirium.
2. Internal Medicine	–	Mainly anti-spasmodic, expectorant to relieve the spasm of respiratory system and to expel the sputum.
3. Diet	–	To maintain tri-dhoshas and energy in equilibrium.
4. Prevention methods	–	To strengthen the muscles of respiration (Pranayamam).
5. Yoga therapy	–	To maintain dhasa vayukkal and to improve mental and physical health.

Kalichal Maruthuvam (Purgation)

As per siddha literature, before starting the treatment for SWASAKASAM, purgation will be given with medicine **Mantha ennai 8ml** OD with warm water at early morning in empty stomach for one day.

Administration of internal medicine

For the treatment of the disease swasa kasam, **Mantharakasa lehiyum 5.4gm** twice a day was given after meals.

Dietary advice

Swasakasam patient can have food as follows:

- Steamed food like Idly, Idiyappam, Puttu
- Mussumusukai adai, Kalyana murungai adai,Thoothuvalai adai
- Turmeric / Pepper mixed milk
- Ginger / Dry ginger mixed coffee
- Crab soup, Vegetable soup, Pepper rasam, Mutton leg soup
- Drumstic, Yam, Brinjal, Manathakkali(Greens), Sundaivatral
- Take well boiled water to drink

Swasa kasam patients should restrict the following also.

- Avoid Cooldrinks, Chocolate, Cake
- Oily substances
- Curd, Ghee, Butter, Cheese
- Dry fish, Chicken, Beaf
- Sweets, Sour food, Tuberous food
- Tined food, Preservative food, Refrigerated foods
- Allergen foods
- Citrus foods
- Vegetables like Cucumber, Snake guard etc.,

General advise

- Avoid smoking, Tobacco , Alcohol,
- Avoid Cold weather

- Avoid Pollutated area, Dust
- Avoid Stress, Emotion
- Do pranayamam
- Have your night food before 7'o clock
- Avoid overeating in night
- Have a bath in hot water

PRANAYAMAM (Breathing Exercise) & YOGA THERAPY

Yoga has become a very popular curing vehicle for most of the ailment that plague humans today. Asthma too can control and cured completely with the help of yoga. The breathing exercises are often combined with yoga postures such as suryabheda and padahasthasana which further helps the body regain the natural inner harmony it requires for completely healthy functioning. These are the easy postures such as the salutation of the sun, simple shoulder lifts that complement the breathing exercises.

பிரணாயாமத்தின் தத்துவம்

ஏறுதல் பூரகம் ஈரெட்டு வாமத்தால்
ஆறுதல் கும்பகம் அறுபத்து நாலதில்
ஊறுதல் முப்பத் திரண்டதில் ரேசகம்
மாறுதல் ஒன்றின் கண்வஞ் சகமாமே.

-திருமந்திரம்

Among the many health benefits of exercise is natural asthma relief. That's why yoga is catching on among people with asthma. Yoga is all around stress-relieving technique with gentle stretches and a slower pace than other workouts. Even better, recent research revealed specific benefits from yoga for asthma relief. So, practicing asanas is more helpful in asthmatic patients as supportive therapies. The following asanas are helpful in Bronchial asthma.

ASANAS FOR BRONCHIAL STHMA

1. Nadi shodhan pranayamam (Alternate nostril breathing technique)
2. Kapal bhati pranayamam (Skull shining breathing technique)
3. Ardha matsyendrasanam (Sitting half spinal twist)
4. Pavanamuktasanam (Wind relieving pose)
5. Setu bandhasanam (Bridge pose)
6. Bhujangasanam (Cobra pose)
7. Adho mukha svanasanam (Downward-facing dog pose)
8. Badhakonasanam (Butterfly pose)
9. Poorvottasanam (Upward plank position)
10. Shavasanam (Corpse pose)

ASANAS

Pranayamam

Ardha matsyendrasanam

Bhujangasanam

Poorvottasanam

Badhakonasanam

Shavasanam

DIFFERENTIAL DIAGNOSIS

NOIKANIPPU VIVATHAM

Swasa Pitham

In Swasa Pitham, there is increased breathing (tachypnoea), flatulence, pain all over the body, excessive salivation, loss of consciousness, pain in the chest followed by cough, loss of appetite etc., In Swasa kasam there is no loss of consciousness and pain in the chest followed by cough.

Mandhara Kasam

In Mandhara kasam there is running nose, sneezing, chest tightness, breath sound is like hissing of snake, excessive sweating present all over the body, cough with expectoration, hoarseness of voice, breathing difficulty etc. In Swasa kasam there is no sweating present all over the body

Kandakiragam

In kandakiragam, there is difficulty in speech, pain in the chest and occipital region, pain all over the body, sweating in face, oral breathing, pain in the ribs, breathlessness and loss of appetite. In swasa kasam, there is no pain in the occipital region.

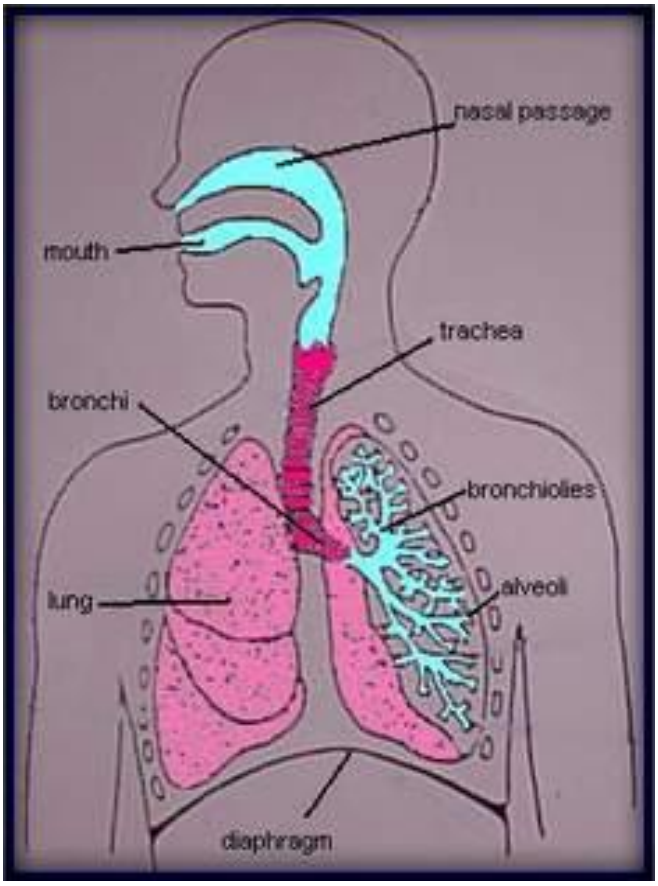
Swasa Silethumam

In Swasa Silethumam, there is accumulation of phlegm in the chest, cough, nasal block, difficulty in breathing, fever with rigor, syncope, tightness of chest, dryness of mouth, running nose, excessive thirst etc. In Swasa kasam, there is no fever with rigor, excessive thirst etc.

Silethuma Vatha Suronitham

In Silethuma Vatha Suronitham symtomps like chillness of body, abdominal distention with tenderness, decreased salivation, body pain, headache, loss of taste, expectoration, dreaming, dyspnoea, fainting, rapid pulse etc. In Swasakasam, there is no abdominal distention and decreased salivation.

ANATOMY OF RESPIRATORY SYSTEM



MODERN ASPECTS

MODERN ASPECTS

ANATOMY & PHYSIOLOGY OF RESPIRATORY SYSTEM

The respiratory system is a complex biological system comprised of several organs that facilitate the inhalation and exhalation of oxygen and carbon dioxide in living organisms.In fact, the respiratory system is composed of the following biological structures:

1. Nose and nasal cavity
2. Mouth
3. Pharynx
4. Larynx
5. Trachea
6. Bronchi and bronchioles
7. Lungs
8. The muscles of respiration.

A properly functioning respiratory system is a vital part of our good health. Respiratory infections can be acute and sometimes life threatening.

Anatomical components

Nose and Nasal cavity

The nose and nasal cavity constitute the main external opening of the respiratory system. They represent the entryway to the respiratory tract- a passage through the body which air uses for travel in order to reach the lungs. The nose is made out of bone, muscle, cartilage and skin, while the nasal cavity is more or less, hollow space.

The cavity is lined with mucus membranes and little hairs that can filter the air before it goes into the respiratory tract. They can trap all harmful particles such as a dust, mold and pollen and prevent them from reaching any of the internal components.

Oral cavity

The oral cavity, more commonly referred to as the mouth, is the only other external component that is part of the respiratory system. Not only does the mouth not possess the ability to warm and moisturize the air coming in but it also lacks the hairs and mucus membranes to filter out unwanted contaminants. On the plus side, the pathway leading from

the mouth is shorter and the diameter is wider, which means that more air can enter the body at the same speed.

Pharynx

The pharynx resembles a funnel made out of muscles that acts as an intermediary between the nasal cavity and the larynx and esophagus. It is divided into three separate sections: (i) Nasopharynx (ii) Oropharynx (iii) Laryngopharynx.

Larynx

The larynx is the next component, but represents only a small section of the respiratory tract that connects the laryngopharynx to the trachea. It is commonly referred to as the voice box, and it is located near the anterior section of the neck, just below the hyoid bone.

Trachea

The trachea is a longer section of the respiratory tract, shaped like a tube and approximately 5 inches in length. The trachea, more commonly referred to as the windpipe, connects the larynx to the bronchi and also has the role of filtering the air prior to it entering the lungs.

Bronchi

The lower end of the trachea splits the respiratory tract into two branches that are named the primary bronchi**.** These first run into each of the lungs before further branching off into smaller bronchi. These secondary bronchi continue carrying the air to the lobes of the lobes of the lungs, and then further split into tertiary bronchi.

The tertiary bronchi then split into even smaller sections that are spread out throughout the lungs called bronchioles. Each one of these bronchioles continues to split into even smaller parts called terminal bronchioles. The walls of the bronchi and bronchioles are also lined with muscle tissue, which can control the flow of air going into the lungs.

Lungs

The lungs are two organs located inside the thorax on the left and right sides. They are surrounded by a membrane that provides them with enough space to expand when they fill up with air. The left lung is smaller and has only two lobes while the right lung has three lobes.

Inside the lungs resemble a sponge made of millions of small sacs that are named alveoli. These alveoli are found at the ends of terminal bronchioles and are surrounded by capillaries through which blood passes.

Pleura and Pleural Cavity

The inside of the thoracic cavities and the lung surface are covered with serous membranes, respectively the parietal pleura and the visceral pleura, which are in direct continuity at the hilum. The lungs are maintained in close opposition to the thoracic wall by a negative pressure between visceral and parietal pleurae. A thin film of extracellular fluid between the pleurae enables the lungs to move smoothly along the walls of the cavity during breathing.

Muscles of respiration

The last component of the respiratory system is a muscle structure known as the muscles of respiration. These muscles surround the lungs and allow the inhalation and exhalation of air. The main muscle in this system is known as the diaphragm, a thin sheet of muscle that constitutes the bottom of the thorax.

It pulls in air into the lungs by contracting several inches with each breath. In addition to the diaphragm, multiple intercostals muscles are located between the ribs and they also help compress and expand the lungs.

Blood supply

On the right side there is one bronchial artery which arises either from the third posterior intercostals artery or from the third posterior intercostal artery or from the upper left bronchial artery. On the left side there are two bronchial arteries both of which arise from the descending thoracic aorta, the upper opposite fifth thoracic vertebra and the lower just below the left bronchus.

The venous blood from the first or two divisions of the bronchi is carried by bronchial veins. Usually there are two bronchial veins on each side. The right bronchial veins drain into the azygos vein. The left bronchial veins drain either into the left superior intercostals vein or

into the hemiazygos vein. The greater part of the venous blood from the lungs is drained by the pulmonary veins.

Lymphatic drainage

Superficial vessels drain the peripheral lung tissue lying beneath the pulmonary pleura. The vessels pass round the borders of the lung and margins of the fissures to reach the hilum. Deep lymphatics drain the bronchial tree, the pulmonary vessels and the connective tissue septa. They run towards the hilum where they drain into the bronchopulmonary nodes.

Nerve supply

Parasymphathetic nerves are derived from the vagus. These fibers are (i) Motor to the bronchial muscles and on stimulation cause bronchospasm. (ii) Secretomotor to the mucous glands of the bronchial tree and (iii) Sensory. The sensory fibers are responsible for the cough reflex.

Sympathetic nerves are derived from second to fifth spinal segments. These are inhibitory to the smooth muscle and glands of the bronchial tree. That is how sympathetic drugs, like adrenalin, cause bronchodilatation and relieve symptom of bronchial asthma.

RESPIRATION

During normal quiet breathing, inspiration is the active process and expiration is the passive process. During inspiration, thoracic cage enlarges and lungs expand. During expiration, the thoracic cage decrease in size and attain the preinspiratory position.

Cycles of Respiration

This occurs 12-15 times per minute and consists of three phases.

- Inspiration
- Expiration
- Pause

Inspiration

The capacity of the thoracic cavity is increased by simultaneous contraction of the inter costal muscles and the diaphragm. The parietal pleura move with the walls of thorax and the diaphragm. This reduces the pressure in the pleural cavity to the level considerably lower than the atmospheric pressure. The visual pleura follow the parietal pleura. During the process, the lungs are stretched; the pressure within the alveoli and the air passage reduced drawing air into the lungs in an attempt to equalize the atmospheric and alveolar air pressure.

The process of inspiration is active as it requires expenditure of energy for muscle contraction. The negative pressure created in the thoracic cavity aids venous return to the heart and is known as respiratory pump.

Expiration

Relaxation of inter costal muscles and the diaphragm results in the downward and inward movement of the rib cage and the elastic recoil of the lungs. As this occurs, the pressure of the gases inside the thorax exceeds the atmospheric pressure and therefore air is expelled from the respiratory tract. The lungs still contain some air and are prevented from complete collapse by the intact pleura. The process is passive as it does not require the expenditure of energy. After expiration there is a pause, before the next cycle begins.

Physiology Variables Affects Respiration

Elasticity

Loss of elasticity of the connective tissue in the lungs necessitates forced expiration and increased effort of inspiration.

Compliance

The ability of lungs and thorax to expand or the expansibility of lungs and thorax is called the compliance. It is defined as the change in volume per unit change in the pressure.

Air flow resistance

When this is increased e.g. in broncho constriction, more respiratory effort is required to inflate the lungs.

Pulmonary function tests:

Pulmonary function tests are useful in assessing the functional status of the respiratory system both in physiological and pathological conditions. Pulmonary function tests are carried out mostly by using spirometer. The air in lung is classified into two divisions:

I. Lung volume
II. Lung capacities

Lung volume

Lung volumes are the volumes of air breathed by an individual during altered pattern of respiration. The lung volumes are dynamic and are four types:

I. Tidal volume

II. Inspiratory reserve volume

III. Expiratory reserve volume

IV. Residual volume

Tidal Volume (TV)

The volume of air breathed in and out of lungs in a single normal quiet respiration is called tidal volume. Tidal volume signifies the normal depth of breathing. Normal value 500ml

Inspiratory Reserve Volume (IRV)

An additional amount of air that can be inspired forcefully after the end of normal inspiration beyond tidal volume is called the inspiratory reserve volume.Normal volume 3300ml.

Expiratory Reserve Volume (ERV)

The additional amount of air that can be expired out forcefully, after normal expiration is called the expiratory reserve volume.Normal volume 1000ml.

Residual Volume

Normally, lungs cannot be emptied completely even by forceful expiration. Some amount of air always remains in the lungs even after the forced expiration. The amount of air remaining in the lungs even after forced expiration is called residual volume. It is significant because of two reasons: (i) It helps to aerate the blood in between breathing and during expiration (ii) It maintains the contour of the lungs

Lung capacities

Two or more lung volumes together are called lung capacities. Lung capacities are of four types:

I. Inspiratory capacity

II. Vital capacity

III. Functional residual capacity

IV. Total lung capacity

Inspiratory capacity (IC)

It is the maximum volume of air that is inspired from end expiratory position. Inspiratory capacity includes tidal volume and inspiratory reserve volume.

IC = TV + IRV=500+3300=3800ml

Vital capacity (VC)

It is the maximum amount of air that is expelled out forcefully after a maximal (deep) inspiration. Vital capacity includes inspiratory reserve volume, tidal volume and expiratory reserve volume.

VC= IRV+TV+ERV=3300+500+1000=4800ml

Functional residual capacity (FRV)

It is the volume of air remaining in the lungs after normal expiration. Functional residual capacity includes expiratory reserve volume and reserve volume.

FRV= ERV+RV=1000=+1200=2200ml

Total lung capacity (TLC)

Total lung capacity is the amount of air present in the lungs after a maximal inspiration. It includes all the volumes.

TLC=IRV+TV+ERV+RV=3300+500+1000+1200=6000

Alveolar Ventilation

This is the volume of air that moves into and out of the alveoli per minute. It is the tidal volume minus the anatomical dead space, multiplied by the respiratory rate.

Alveolar ventilation = (TV-anatomical dead space) respiratory rate

= **(500-150) ml x 15 per minute = 5.25liters / minute**.

Lungs function tests are carried out to determine respiratory function and are based on the parameters out lined above.

External Respiration

This is the exchange between alveoli and blood. Total area of gas exchange in the lungs is 70-80 square meters. CO_2 diffuses from venous blood along the contraction gradient into the alveoli until equilibrium with alveolar air is reached. By the same process O_2 diffuses from alveoli to the blood.

Internal Respiration

This is the exchange of air between the tissue and blood. When there is difference in partial pressures, oxygen diffuses outward from the blood to extra cellular fluid then into the cell walls. The process involved is diffusion.

Control of Respiration

Control of respiration is normally involuntary. Voluntary control is exerted during activities such as speaking, singing but is over ridded if homeostasis of arterial PO_2 and PCO_2 is threatened i.e. if this is high arterial PCO_2 or low arterial PO_2.

BRONCHIAL ASTHMA

Bronchial asthma is a disease characterized by (i) airway obstruction (airway narrowing) that is reversible (but not completely so in some patients) either spontaneously or with treatment (ii) airway inflammation and (iii) airway hyper responsiveness to a variety of stimuli.

Subsequently the Consensus Report describes asthma as a "Chronic inflammatory disorders of the airways in susceptible individuals, inflammatory symptoms are usually associated with widespread but variable airflow obstruction and an increase in airway response to a variety of stimuli. Obstruction is often reversible, either spontaneously or with treatment.

Prevalence

The prevalence of asthma is not exactly known. The disease has reached epidemic proportions affecting 334 million individuals in the world. The WHO estimates that there are 15-20 million asthmatics in India alone. The WHO estimates that asthma has increased by about 40-50 percent in the last decade.

Asthma has a major economic impact over the family since; asthma treatment related expenditure might consume a large portion of a family's income in the developing countries like India. The hypothesis that environmental factors related to living conditions may have been responsible for varied prevalence and causation of asthma needs further study.

Etiology

Etiologically asthma is heterogeneous disease. There are two types of asthma

- Early onset asthma (atopic, allergic, extrinsic)
- Late onset asthma (Non-atopic, Idiosyncratic, Intrinsic)

Atopic Asthma

Atopic or extrinsic asthma defines the asthmatic symptoms manifesting in an atopic individual. The word atopic in reality denotes a genetic susceptibility to develop allergies hence why atopic asthma, is often associated with eczema or other hypersensitive related reactions.

An individual who suffers from allergies can suffer from asthma attacks brought on by certain substances, called allergens, with the constriction and obstruction of the bronchi due to secretion of mucous causing breathing difficulties.

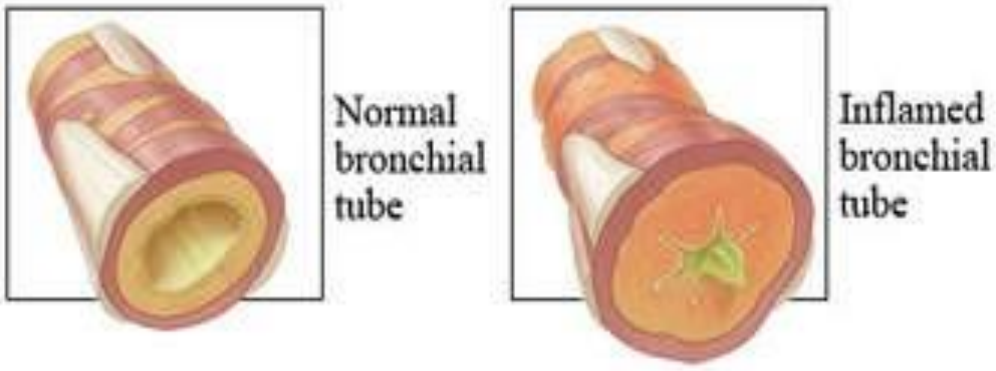
This type of asthma is extremely common in children and the allergies are investigated using allergy tests called skin-prick tests, and often identified as dust mite, dust animal hair, or pollen allergies. Treatment for this type of asthma is the same for any typical form, with added measures of elimination of the allergens responsible.

Non – Atopic Asthma

Non atopic asthma refers to inflammation and constriction of the airways that is not caused by exposure to allergens. There is no cure but identifying and avoiding the triggering factors will prevent symptoms developing. Symptoms may be managed by various asthma medications such as bronchodilators, antiinflammatories and asthma inhalers.

This type of asthma develops later in adult life with negative personal (or) family history of allergy, negative skin test and normal serum levels of IgE.

CHANGE IN BRONCHIAL TUBE DURING ASTHMA ATTACK



PATHOPHYSIOLOGY OF ASTHMA

The inhalation of an allergen in a sensitized atopic asthmatic patient results in a two phase bronchoconstrictor response. The inhaled allergen rapidly interacts with mucosal mast cells via IgE dependent mechanism, resulting in the release of mediators such as histamine and the cysteinyl leukotrienes with resulting brochoconstriction.

With increasing severity and chronicity of the disease, remodeling of the airway occurs leading to fibrosis of the airway wall, fixed narrowing of the airway and a reduced response to bronchodilator medication.Asthma has the following pathological characteristics:

- Airway obstruction (or airway narrowing), that is reversible (at least partially), either spontaneously or with treatment.
- Airway inflammation
- Airway hyper responsiveness to a variety of stimuli

Airway obstruction

Airway obstruction is responsible for the clinical manifestations of asthma such as wheezing, dyspnoea, and cough.

Airway obstruction, which is determined by the diameter of the airway lumen, can be influenced by a number of factors, including oedema of the bronchial wall, mucus production, airway smooth muscle contraction, and airway remodeling suggesting a rationale for early initiation of anti inflammatory therapy.

Airway inflammation

The airways of asthma patients are infiltrated by a number of different inflammatory cells, which then cause epithelial disruption and mucosal oedema. An initial trigger in asthma may cause the release of inflammatory mediators from bronchial mast cells, macrophages and epithelial cells.

In addition to the release of cytokines by mast cells, T-cells, fibroblasts, endothelial cells and epithelial cells activate neutrophils, eosinophils and macrophages, which produce chronic allergic inflammation characteristic of asthma.

This process produces epithelial injury, abnormalities in neural mechanisms, increase in airway smooth muscle responsiveness, and airflow obstruction. Epithelial injury can lead

to increased permeability and sensitivity to inhaled allergens, irritants, and inflammatory mediators.

In addition, transduction of fluids and reduced clearance of inflammatory substances and respiratory secretions occur with disruption of epithelium mucociliary mechanisms. The inflammatory process may chronically irritate the airway leading to chronic cough symptoms.

Airway hyperresponsiveness

Airway hyperresponsiveness is an exaggerated bronchoconstrictor response to many physical, chemical and pharmacological agents e.g., allergens, environmental irritants, viral respiratory infections, cold air or exercise.

Whether airway hyperresponsiveness, an abnormality fundamental to the pathogenesis of asthma is present at birth in genetically predisposed individuals, or whether it is acquired, is under investigation.

The level of airway hyperresponsiveness usually correlates with the clinical severity of asthma and with medication requirement. Atopy, the genetic predisposition for the development of an IgE mediated response to common aero allergens, is the strongest identifiable predisposing factor for developing asthma.

The stimuli that interact with airway responsiveness and incite acute episodes of asthma can be grouped into ten major categories – allergic, pharmacological, environmental, infections, occupational, exercise, heart burn, food and drink, weather changes, smoking, sulfer dioxide and emotional stress.

Allergens

An allergy with asthma is a common problem. Eighty percent of people with asthma have allergies to airborne substances such as tree, grass, and weed pollens, mold, animal dander, dust mites, and cockroach particles.

Allergic asthma is dependent on IgE response controlled by T and B lymphocytes and activated by the interaction of antigen with mast cells-bound IgE molecule.

Pharmacological stimuli

The drugs most commonly associated with the induction of acute episodes of asthma are aspirin, coloring agents – tartazine, b- adregenic antagonists, sulfating agent.

Aspirin – sensitive syndrome affects adults through seen in childhood. The problem usually begins with perennial vasomotor rhinitis that is followed by a hyper plastic rhino sinusitis with nasal polyps, progressing to asthma. Indomethacin, fenoprofen, naprocen, zonepirae sodium, ibuprofen, mefanamic acid and phenylbutazone are particularly important.

B-Adrenergic antagonist regularly obstructs the airway in asthmatics. In fact, the local use of b- blockers in the eye for the treatment of glaucoma has been associated with worsening asthma.

Air pollutants

Children with asthma who are exposed to maternal smoking have higher requirements for medication and more frequent emergency department visits. Other irritants such as wood smoke, household sprays, volatile organic compounds (e.g. polishes and cooking oils), and air pollutants may also exacerbate asthma.

Respiratory infections

It is well established that viral respiratory infections can excertable asthma, particularly in children with asthma under the age of 10. Respiratory syncytial virus, rhinovirus, and influenza virus have been implicated, with rhinovirus being implicated in the majority of the exacerbation of asthma in children.

The role of infections as triggers also appears to be important but not common in adults. Respiratory virus may exacerbate asthma through different mechanism. One is that viral infections may cause epithelial damage and airway inflammation, both of which events may create asthma symptoms.

In addition, virus has been shown to potentiate the allergic response to allergens by increasing the release of inflammatory mediators and the cascade of inflammatory events characteristic of asthma.

Occupational factors:

Broncho constriction can result from working with or being exposed to metal salts, wood and vegetable dust, husk of grains, flour, gum acacia, pharmaceutical agents e.g. antibiotics, piperazine and cimetidine, industrial chemicals and plastics, biological enzymes, laundry detergents, animal & insect dusts, serum and secretions. There seems to be three underlying mechanisms:

1. In some cases, the offending agent results in formation of significant IgE.
2. Substances cause direct liberations of broncho constrictor substances.
3. Substances cause direct or reflex stimulation of the airway of latent of frank asthmatics.

Exercise:

Strenuous exercise can cause a narrowing of the airways in about 80% of people with asthma. These symptoms usually subside in the next 20 to 30 minutes of exercise, but up to 50% of those with exercise-induced asthma may have another asthma attack six to 10 hours later. It is important to warm up slowly and adequately prior to rigorous exercise. This may prevent an attack. The mechanisms, by which exercise produce obstruction, may be related to a thermally produced hyperthermia and engorgement of the microvasculature of the bronchial wall and doesn't appear to involve smooth muscle contraction.

Heartburn and Asthma

Severe heartburn and asthma often go hand-in-hand. Recent studies show that up to 89% of asthma patient also suffer from severe heartburn, known as gastroesophageal reflux disease (GERD). GERD generally occurs at night when the sufferer is lying down. The stomach acids reflux, or back up, into the esophagus; if the acid reaches into the throat or airways the irritation and inflammation can trigger an asthma attack.

Certain clues that suggest reflux as the cause of asthma include the onset of asthma in adulthood, no family history of asthma, no history of allergies or bronchitis, difficult-to-control asthma, or coughing while lying down.

Food additives

It is widely believed that allergic reactions to foods are common asthma triggers but documented evidence for this is difficult to find in the literature. Some ingested substance, including salicylates, food preservatives, monosodium glutamate, and some food coloring agents, cause asthma symptoms in some patients.

Preservatives in many beverages (including wine and beer) and in some foods contain metabisulphite, which may cause bronchospasm.

Weather changes

Adverse weather conditions such as freezing temperatures, high humidity, thunderstorms and episodes of acute pollution brought out by weather conditions have been associated with asthma exacerbations.

Smoking:

Smokers appear to be at greater risk of developing asthma and have a higher prevalence of hyper-reactivity. Children of smokers also seem to have and increased risk of developing wheeze. Women who smoke during pregnancy increase the risk of wheezing in their babies**.**

Sulfer dioxide

The irritant can trigger dose dependent airflow limitation in patients with asthma, although it has no effect on the airway of normal subjects up to very high concentration. Airflow limitation may be incited by sulfer dioxide at concentrations as low as 1ppm, a level easily encountered in the work place or elsewhere in the environment

Extreme Emotional Expression

Emotional stress may be trigger for asthma exacerbations primarily because extreme expressions of laughing, crying, anger, or fear can lead to hyperventilation and hypercapnoea that can cause airway narrowing. However it is important to note that asthma is not a psychosomatic disorder.

Clinical features

Bronchial asthma may be either episodic or chronic, and although there is a good deal of overlap between these two syndromes the distinction is clinically useful particularly in terms of prognosis and management. In general atopic individuals tend to develop episodic asthma, and non-atopic individuals chronic asthma.

Episodic asthma

In this form of the disease the patient has no respiratory symptoms between episodes of asthma. Paroxysms of wheeze and dyspnoea may occur at any time and can be of sudden onset. Episodes of asthma can be triggered by allergens, exercise, viral infections such as common cold, or may be apparently spontaneous. Attacks may be mild or severe and may last for hours, days, or even weeks.

Chronic asthma

Symptoms of chest tightness, wheeze, and breathlessness on exertion, together with spontaneous cough and wheeze during the night may be chronic unless controlled by appropriate therapy. Episodes of 'severe acute asthma' can occur, and cough productive of mucoid sputum with recurrent episodes of frank respiratory infection is common in this type of asthma which in adults may be difficult to distinguish from chronic bronchitis.

Nocturnal Asthma

Nocturnal asthma is defined as an overnight fall of more than 20% in the FEV, or PEFR. It may be the sole manifestation of asthma. This is presumed to be due to

a. Early morning fall in circulating adrenaline

b. Overnight changes in vagal tone (increased vagal tone in early morning)

c. Airway cooling at night

d. Circadian changes in plasmas cortisol concentration (mid night to early morning fall in cortisol level.

DIFFERENTIAL DIAGNOSIS

The differentiation of asthma from other disease associated with dyspnoea, wheezing is usually not difficult, particularly when the patient in seen during acute attacks.

- Vocal cord dysfunction
- Tracheal and bronchial lesions
- Congestive heart failure
- Pulmonary migraine

S.NO	FACTORS	CARDIAC ASTHMA	BRONCHIAL ASTHMA
1	Past history	Hypertension, aortic or coronary disease.	Previous attacks of asthma or other allergic conditions in patients of other member of the family.
2	Age	Onset usually after 50y yrs	Any age
3	Precipitating factors	Precipitated by execration or acute myocardial infarction or hypertension.	Precipitated by respiratory tract infections, cold weather, allergens such as pollen and house dust mites, stress, exercise and cigarette smoke.
4	Symptoms	Shortness of breath with or without wheezing ; Rapid or shallow breathing; An increase in blood pressure and heart rate	A feeling of tightness in the chest; Difficulty in breathing or shortness of breath; Wheezing and Cough

S.NO	PARAMETER	BRONCHIAL ASTHMA	COPD
1.	Age of onset	Asthma is most often diagnosed in childhood or young adulthood.	COPD is generally diagnosed later in life, often after age 40.
2.	Underlying cause	Triggered by allergies or environmental factors, including cigarette smoke.	COPD is due almost entirely to smoking cigarettes, exposure to certain substances such as chemical fumes and air pollution
3.	Timing and severity of symptoms	People with asthma tend to have a dry cough and wheeze, symptoms which may become worse at night.	People with COPD often start their day with a “productive cough” meaning they bring up phlegm.
4.	Sputum	Eosinophilia, metachromatic cell, creola bodies.	Neutrophilia.
5.	Related symptoms	Often accompanied by other allergy symptoms, like rhinitis or eczema	Nil
6.	Related conditions	People with asthma are very likely to have gastroesophageal reflux disease	People with COPD are much more likely to have congestive heart failure
7.	Course of disease	Asthma can be controlled	COPD is considered to be a progressive loss of lung function.

DIAGNOSIS AND INVESTIGATION

Lung function tests

The two most common lung function tests used to diagnose asthma are spirometry, exhaled nitric oxide and challenge tests.

Spirometry

Spirometry can be done before and after inhale a short- acting medication called broncho dilator, such as albuterol. The bronchodilator causes airways to expand, allowing for air to pass through freely. This test might also be done at future doctor visits to monitor progress and help to determine if and how to adjust your treatment plan.

Exhaled Nitric Oxide

Nitric oxide is a gas that is produced in the lungs and has been found to be an indicator of inflammation. Because asthma is an inflammatory process, this test has become helpful in the diagnosis and management of asthma.

Challenge Test

The tests might be performed if your symptoms and screening spirometry do not clearly or convincingly establish a diagnosis of asthma. There are two types of challenge tests: Mathacholine and Mannitol. These agents when inhaled can cause the airways to spasm and narrow if asthma is present.

Peak Expiratory Flow Meter:

It is a popular instrument for assessing airflow obstruction there is a cheap, simpler version called the mini peak flow meter which is suitable for use at home by individual patients. Those machines measure the maximal rate of flow which is achieved during a forced expiration and most healthy people will achieve values of greater than 400 liters/min.

Patients with airflow obstruction will have reduced flow rates, which values below 200 liters/min being very significant and those below 100 liters/min extremely severe.

Flow Volume Curves

The plotting of flow versus volume during both maximal expiratory and inspiratory maneuvers is of major help in differentiating central airflow obstruction (leading to strider) from diffuse airflow obstruction as seen in COPD and Asthma.

Lung Volumes

There are four lung volumes and four lung capacities. A lung capacity consists of two or more lung volumes. The lung volumes are Tidal volume (TV), Inspiratory reserve volume (IRV), Expiratory rreserve Volume (ERV) and Residual volume (RV). The four lung capacitoies are Total lung capacity (TLC), Inspiratory capacity (IC), Functional residual capacity (FRC) and Vital capacity (VC). The people with asthma may show changes in their lung volumes.

Measurement of Diffusing Capacity

Diffusing capacity of the lungs measures how well gases such as oxygen move from the lungs into the blood. There are several ways to measure this, but the most common way is the ten second single breath-hold technique. Results of this test can tell your doctor about the amount of damage or abnormality that is present where the air and the blood meet. While this test does not specifically test for asthma, it may help your doctor to diagnose you correctly.

Arterial Blood Gases (ABG)

This is a blood test that may be ordered with your PFT's to give your doctor even more information about your health. ABGs can show how well your lungs are getting oxygen into your blood and carbon dioxide out of your blood. For this test, a sample of blood is drawn from your artery, from your wrist or elbow area.

Skin Hypersensitivity Test

A prick is made in the skin with a fine needle through a drop of an aqueous extract of the substance to be tested. A positive reaction is indicated by the development of a wheal and flare, which begins to appear within few minutes. Tests are usually performed with a group of common allergens knows to cause bronchial asthma.

Exercise Tests

The six minute walk test is a good index of physical function and therapeutic response in patients with chronic lung disease such as COPD or Idiopathic pulmonary fibrosis.

Physical Signs of the Chest

On examination,

- Percussion - Hyper resonant.
- Breath sounds- High pitched polyphonic expiratory and inspiratory rhonchi are vesicular in character with prolonged expiration.

Severe asthma persisting from childhood may cause a 'pigeon chest' deformity

Measurement of allergic status

An elevated sputum or peripheral blood eosinophil count may be observed and the serum total IgE is typically elevated in atopic asthma.

Radiology Examination

Acute asthma is accompanied by hyperinflation, and lobar collapse may be seen if mucus has occuluded a large bronchus. Flitting infiltrates, on occasion accompanied by lobar collapse, suggest asthma complicated by allergic bronchopulmonary aspergillosis (ASPA).

Sputum Examination

This is useful for the demonstration of aspergillums fumigates. Eosinohhils are a prominent feature of the inflammatory exudates within the airway lumen lies a thick tenacious mucus which under the microscope is seen to contain strips of desquamated epithelial cells (Curschman's spirals) eosinophils, isolated metaplastic epithelial cells (Creola bodies) & crystalline materials consisting largely of major basic protein derived from eosinophilic granules. (Charcot – leydon crystals).

Complications:

Mortality is uncommon in asthma but a severe attack may result in respiratory failure and death.

- Frequent respiratory infection

- Pulmonary collapse due to obstruction by viscid secretions
- Pneumothorax,
- Emphysema
- Cough fracture (fracture of ribs due to violent coughing),
- Long standing bronchial asthma, punctured with frequent expiratory infections may lead to emphysema and chronic corpulmonale.

Prognosis:

The prognosis of the individual attack is good, except in severe acute asthma, when there is occasionally a fatal outcome, especially if treatment is inadequate of delayed. Spontaneous remission is fairly common in episodic asthma, particularly in children, but rare in chronic asthma, which can lead to irreversible airflow obstruction. Seasonal fluctuation can occur in both types of asthma. Atopic subject with episodic asthma are usually worse in the summer, when they are more heavily exposed to antigens, while chronic asthmatics are usually worse in winter months, because of the increased frequency of viral infections. There is no cure for asthma, although symptoms sometimes improve over time. With proper self management and medical treatment, most people with asthma can a lead normal life.

Prevention:

Avoidance of allergens:

There are a few instances in which a single agent can be identified as the cause of attacks of asthma. These allergens include grass pollens, mites, animal dander, drugs, industrial chemicals such as isocyanates and certain articles of diet. The vast majority of asthmatic patients are hypersensitive to a wide range of allergens and attempts to avoid them all are impracticable.

MATERIALS AND METHODS

MATERIALS AND METHODS

TITLE

Clinical study on "**SWASAKASAM"** (Bronchial asthma) and the drug of choice is "**MANTHARA KASA LEHIYUM**" (Internal)

OBJECTIVES

PRIMARY OBJECTIVE

To study the Siddha formulation MANTHARA KASA LEHIYUM (INTERNAL) in the management of SWASAKASAM (Bronchial Asthma)

SECONDARY OBJECTIVE

1) To study other cofactors related to the disease like age, occupation, socioeconomic Status.
2) To study the comorbid factors related to the disease such as gastro-esophageal reflux disease (GERD), rhinosinusitis, apnea and anxiety etc.

STUDY DESIGN

Study type **:** An open clinical trial

Study place **:** OPD of Ayothidoss Pandithar Hospital,
National Institute of Siddha,
Tambaram sanatorium, Chennai -47.

Study period **:** 12 months.

Sample size **:** 40 patients

TREATMENT

Name of the drug **:** Manthara kasa lehiyum (Internal)

Dosage **:** Thandrikkai alavu -5.4 gm
(Twice a day /after food)

Route of drug administration : Oral route

Duration **:** 48 days

Indication **:** **Swasa kasam** (BRONCHIAL ASTHMA), Mantharakasam

Book Ref **:** Agathiyar vaithiya kaviyam-1500

Editor Name **:** Munaiver.V.R.Madhavan

Edition **:** 1st Edition 1994

SUBJECT SELECTION:

When patients reporting at OPD 1 Dept of Maruthuvam, Ayothidoss Pandithar Hospital, NIS with symptoms of inclusion criteria will be subjected to screening test and documentation will be done by using screening proforma.

INCLUSION CRITERIA:

- Age: 19- 60 years
- Sex: Male/Female
- Patient who having the symptoms of Difficulty in breathing, Cough with or without expectoration, Dyspnoea , Tightness of chest, Wheeze- added sound (Rhonchi).
- History of allergy and sneezing
- Patient who are willing to take radiological investigation and provide blood for lab investigation.
- Patient who are willing to estimate volume of air forcibly expired after a deep inspiration by using Mini –Peak Flow Meter and PEFR below normal range from 250L /min to 150L/min for men; From 200L/min to 100L/min for women, for those patients are included
- Normal range of PEFR:

  Male: Young adult: 400 – 650L/min: Above 40 yrs 300-500L/min

  Female: Young adult: 250-450L/min: Above 40 yrs 200-400L/min
- Patient willing to participate in trial and signing in consent form.

EXCLUSION CRITERIA:

- H/O Cardiac disease.
- H/O Renal disease.
- Tuberculosis.
- H/O COPD.
- Status asthmaticus.
- Diabetes mellitus.
- Hypertension.
- Pregnancy.
- Lactation.
- Psychological factors.
- Worm infestation.

WITHDRAWAL CRITERIA:

- Intolerance to the drug and Development of adverse reactions during the drug trial.
- Poor Patient Compliance & Defaulters.
- Patients turned unwilling to continue in the course cf clinical trial.
- Patient will not take medication regularly.
- Occurrence of any serious illness.

TESTS AND ASSESMENTS:

- Clinical Assessment
- Siddha Assessment
- Laboratory investigations
    - Routine Investigations
    - Special Investigation

CLINICAL ASSESMENT:

- Dry cough or protective cough
- Wheezing
- Tightness of chest
- Sneezing
- Rhinorrhoea

- Hoarseness of voice
- Sleep disturbance
- Expiration is like a hiss of a serpent
- Frequent hemming
- Sense of heat in both nostril

SIDDHA ASSESSMENT:

1. Thinai (Living Place):

1. Kurinchi (Hill Areas)
2. Mullai (Forest)
3. Marutham (Fertile Land)
4. Neithal (Costal Area)
5. Paalai (Desert)

2. Paruva Kaalam (season)

1. Karkaalam
2. Koothir kaalm
3. Munpanikaalm
4. Pinpani kaalam
5. Ilavenil kaalam
6. Mudhuvenil kaalam

3. Poripulankal:

1. Mei (Skin)

2.Vaai (Tongue)

3.Kan (Eye)

4.Mooku (Nose)

5.Sevi (Ear)

4. Kanmedriyam and Gnanenthiriyam:

1. Vaai (Buccal cavity)
2. Kaal (Lower limbs)
3. Kai (Upper limbs)
4. Eruvaai (Anorectal region)
5. Karuvaai (Uro-genital region)

5. Ezhuudalkattugal:

1. Saram
2. Senneer
3. Uoon
4. Kozhuppu
5. Enbu
6. Moolai
7. Sukkilam /suronitham

6. Ennvagaithervu (Eight types of Examination):

1. Naadi
2. Sparisam
3. Naa
4. Niram
5. Mozhi
6. Vizhi
7. Malam
8. Moothiram

Neerkuri-

Nei kuri-

LABORATORY INVESTGATION - ROUTINE INVESTIGATION

BLOOD

- Hb (gm/dl)
- Total WBC Count(Cells/cumm)
- DC- Polymorphs (%)
- Lymphocytes (%)
- Eosinophils (%)
- Monocytes (%)
- Basophils (%)
- Total RBC count(Millioncells/cumm)
- ESR(mm/hr)
- Blood glucose(mg/dl): (Fasting)

  (Post – prandial)
- Blood urea(mg/dl)
- Serum Creatinine (mg/dl)
- Serum cholesterol(mg/dl)
- HDL cholesterol(mg/dl)
- LDL cholesterol(mg/dl) `
- VLDL cholesterol(mg/dl)
- Serum triglycerides(mg/dl)
- Serum total bilirubin (mg/dl)
- Serum Direct bilirubin (mg/dl)
- Serum Indirect bilirubin (mg/dl)

- Serum Alkaline phosphotases (u/l)
- SGOT (u/l)
- SGPT (u/l)
- Serum Total Protein (g/dl)
- Serum Albumine(g/dl)
- Serum Globulin(g/dl)
- Serum Calcium (mg/dl)
- Serum Phosphorous (mg/dl)
- Serum Uric Acid (mg/dl
- IgE
- AEC

SPUTUM - AFB

URINE

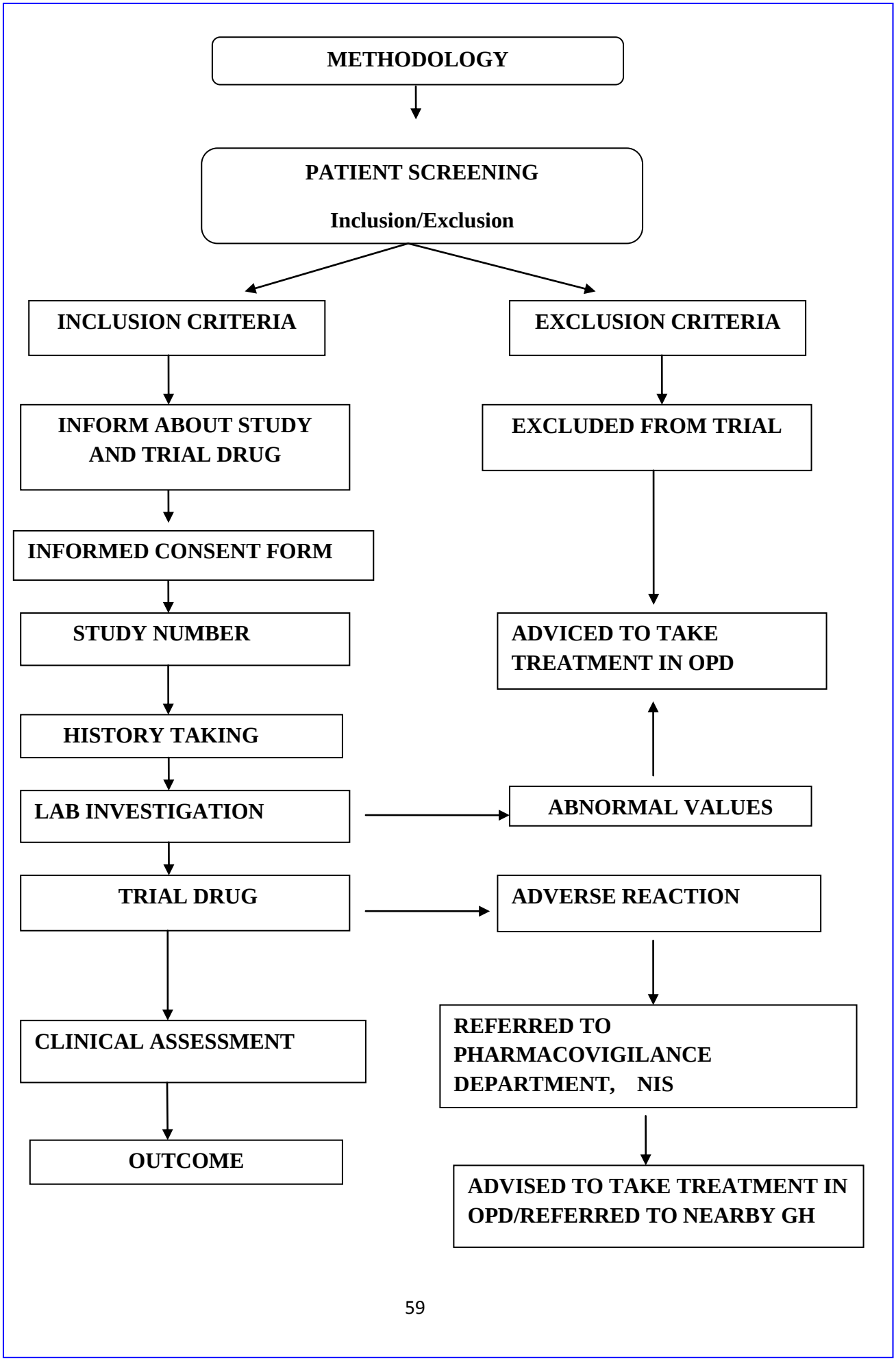
- Urine sugar (F)&(PP)
- Albumin
- Deposits

MOTION

- Ova
- Cyst
- Occult blood

SPECIFIC INVESTIGATIONS

- X-ray chest (PA view)
- ECG.
- Peak Expiratory Flow Rate (PEFR) with the help of Peak expiratory flow meter. [L/min]


METHODOLOGY
PATIENT SCREENING
Inclusion/Exclusion
INCLUSION CRITERIA
EXCLUSION CRITERIA
INFORM ABOUT STUDY AND TRIAL DRUG
EXCLUDED FROM TRIAL
INFORMED CONSENT FORM
STUDY NUMBER
ADVICED TO TAKE TREATMENT IN OPD
HISTORY TAKING
LAB INVESTIGATION
ABNORMAL VALUES
TRIAL DRUG
ADVERSE REACTION
CLINICAL ASSESSMENT
REFERRED TO PHARMACOVIGILANCE DEPARTMENT, NIS
OUTCOME
ADVISED TO TAKE TREATMENT IN OPD/REFERRED TO NEARBY GH

METHODOLOGY

STUDY ENROLLMENT

- In this clinical trial Patient Reporting at the Maruthuvam, Ayothidoss pandithar Hospital, NIS, With Clinical symptoms of rhinitis for short period, difficulty in breathing due to chest tightness, cough, sweating present in the head, face become black, chillness of the extremities, dryness of mouth, eye look like exopthalmus state, body shivering, sleeplessness will be examined clinically for enrolling in the study based on the inclusion and exclusion criteria.
- The patients enrolled in this study will be informed about the objective of the study, trial drug, possible outcomes in their own language and terms understandable to them.
- After ascertaining the patient's willingness, informed consent will be obtained in the consent form.
- All these patients will be given unique registration card which will contains information regarding patients' Registration number, Address, Phone number and Doctors phone number etc. It can help to report easily if any adverse reactions arise.
- Complete clinical history, complaints and duration, examination findings-- all will be recorded in the prescribed case record form. Screening Form- I will be filled up; Form II will be used for recording the patients' history, clinical examination of signs and symptoms and laboratory investigations respectively.
- Patients will be advised to take the trial drug with an appropriate dietary advice would be given according to the patients perfect understanding.

CONDUCT OF THE STUDY

- Patients who came under Incluction and Exclution Criteria will be recruited for the Study.
- As per siddha literature, before starting the treatment for SWASAKASAM, purgation will be given with the OP medicine Mantha ennai 8ml OD with warm water at early morning in empty stomach for one day.
- Then the trial drug "**MANTHARA KASA LEHIYUM"** is given at a dose of 5.4gm twice a day continuously for 48 days. For OP patients, they should visit the hospital once in 8days. At each visit clinical assessment will be done and prognosis will be noted.

- The laboratory investigation will be done before and after treatment and recorded in the prescribed format (Form No: III). For OPD patients, for further continuation of the treatment.
- During the course of the treatment, patient is advised to take the diet as given in Form VIII.
- If any of the trial patients who fail to collect the trial drug on the prescribed day but wants to continue in the trial, from the next day or two, he/ she will be allowed, but defaulters of more than one week will not be allowed to continue and be withdrawn from the study with fresh case being included.

Follow-up

After the end of the treatment, the patient is advised to visit the OPD for another two months for follow-up. In the follow-up period the patient's improvement will be documented. Trial medicines will not be given in this period.

DATA MANAGEMENT

- After enrolling the patient in the study, a separate file for each patient will be opened and all forms will be filed in the file. Study No. and OPD/ IPD No. will be entered on the top of file for easy identification. Whenever the study patient visits OPD during the study period, the respective patient file will be taken and necessary recordings will be made at the CRF or other suitable forms.
- The screening forms will be separately.
- The Data recordings will be monitored for completion by Guide (HOD, Dept. of Maruthuvam), SRO (statistics) and the adverse event will be monitored by the members of the reactions Pharmacovigilance department of NIS. All forms will be further scrutinized in presence of investigator by Sr.Research Officer (statistics) for logical errors and incompleteness of data to avoid any bias. No modification in the results is permitted for unbiased reports.

STATISTICAL ANALYSIS

All the data will be entered into computer using MS Access software with macro for logical errors and manually cross checked for data entry error. Then the data will be exported to STATAL/SPSS Software for univariate/multivariate analysis. Student't' test and Paired 't'

test and Mantel-Haenszel chi-square test will be performed for determining the significance of a particular effect variable.

OUTCOME OF TREATMENT

a. PRIMARY OUTCOME

Primary outcome is mainly assessed by comparing the pre and post treatment Peak expiratory flow rate (L/min)

b. SECONDARY OUTCOME

Secondary outcome is assessed by comparing the following parameters, before and after the treatment.

1. Other clinical symptoms

2. Eosinophils (%) and ESR

ADVERSE EFFECT/ SERIOUS EFFECT MANAGEMENT

If the trial patient develops any adverse reaction, he/she will be referred to the pharmacovigilance department of NIS. The members of this department will assess the adverse event and recorded in the prescribed adverse reaction form. For any AE the investigator (PG Scholar) will be given the proper management at NIS, OPD with free of cost.

ETHICAL ISSUES

- To prevent any infection, while collecting blood sample from the patient, only disposable syringes, disposable gloves, with proper sterilization of lab equipments will be used.
- No other external or internal medicines will be used. There will be no infringement on the rights of patient for this particular indication.
- The data collected from the patient will be kept confidentially. The patient will be informed about the diagnosis, treatment and follow-up.
- After the consent of the patient (through consent form) they will be enrolled in the study.

- Informed consent will be obtained from the patient explaining in the understandable language to the patient.
- Treatment would be provided free of cost.
- In conditions of treatment failure, adverse reactions, patients will be given alternative treatment at the National Institute of Siddha with full care throughout the end.
- The patients who are excluded [as per the exclusion criteria] will be given proper treatment, at NIS.

ASSESSMENT FORMS:

Form - I	Screening and Selection Proforma
Form - II	Case record form
Form - III	Laboratory investigation form
Form – IV	Treatment Compliance form
Form – V	Information sheet
Form - VI	Consent form
Form -VII	Withdrawal form/ Adverse drug reaction form/ Pharmacovigilance form
Form -VIII	Dietary Advice form.

PREPARATION & PROPERTIES OF TRIAL DRUG

PREPARATION OF THE TRIAL MEDICINE

MANTHARA KASA LEHIYUM (INTERNAL)

INGREDENTS:

Required raw drugs

1. Kandankaththiri (S*olanum surrattense, Burm .f)}*

2. Thuthuvelai (S*olanum trilobatum.Linn*)

3. Adathodai leaves (A*dathoda vasica.Linn)*

4. Araththai *(*A*lpinia officinarum.Linn)*

5. Chukku (*Zingiber officinale, Rosc)*

6. Milagu *(*P*iper nigrum.Linn)*

7. Thippili *(*P*iper longum.Linn),*

8**.** Nei (Ghee)

9. Then (Honey)

10. Powdered sugar

Source of drug

The above said raw drugs were purchased from a well reputed country shop at Chennai. The raw drugs were authenticated by Botanist NIS, Pharmacognosist SCRI Arumbakkam, Chennai. The raw drugs were purified and the medicine was prepared as per SOP as in the Gunapadam Laboratory of NIS, Chennai.

METHOD OF PURIFICATION*:*

PURIFICATION OF RAW DRUGS:

1. Kandankaththiri leaves(S*olanum surrattense,Burm.f)*

Take the leaves and wiped with dry clean cloth and removed the putrefied parts and mid vein.

2. Thuthuvelai leaves (S*olanum trilobatum.Linn*)

Take the leaves and wiped with dry clean cloth and removed the putrefied parts and mid vein.

3. Adathodai leaves (A*dathoda vasica.Linn)*

Take the leaves and wiped with dry clean cloth and removed the putrefied parts and mid vein.

4. Chukku *(Alpinia galangal.Linn)*

Soaked in lime stone water and allowed to dry. Then outer layer was removed.

5. Milagu (Z*ingiber officinale, Rosc)*

Soaked in buttermilk for one hour fifteen mintues and then roasted.

6. Thippili *(Piper nigrum.Linn)*

Soaked in lemon juice

7. Chitharathai (A*lpinia officinarum*)

The skin of the Chitharathai was removed, cut into pieces and dried.

Preparation:

STEP 1:

The purified raw drugs from 1 to 7 were made in to fine powder.

STEP 2:

The powder was added to the sugar syrup (to the 180 gms of powdered sugar required quantity of water was added and boiled till it reaches syrup consistency) and mixed it well until it reaches lehiyum consistency.

STEP 3:

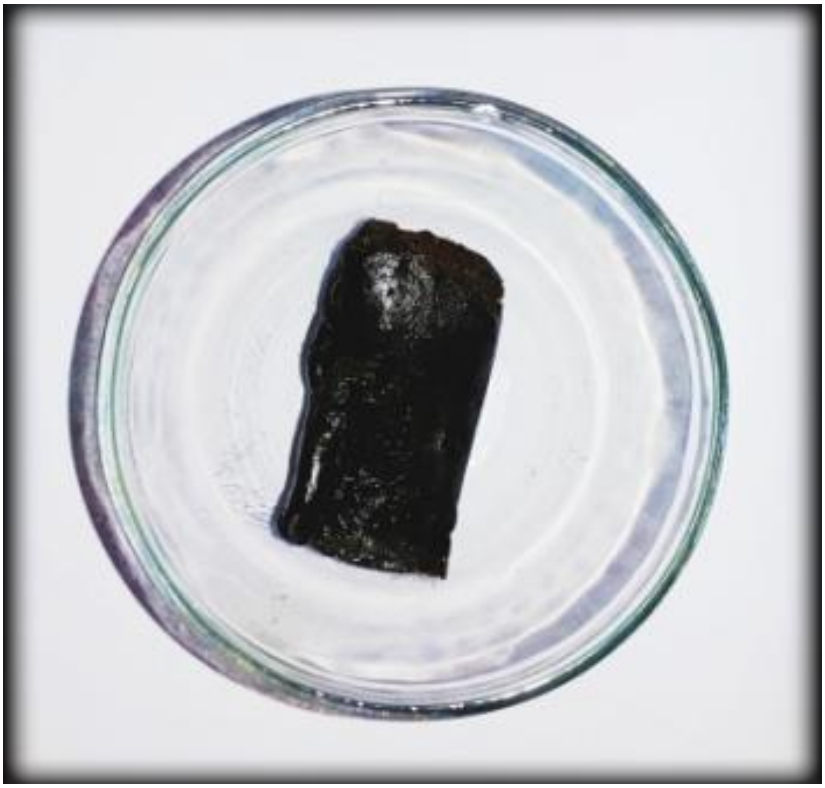
Honey and ghee (each 180 gms) were added to the above mixture.

Drug Storage:

The prepared drug was stored in clean and dry new air tight container.

Dosage	:	Thandrikkai alavu -5.4 gm (Twice a day /after food)
Duration	:	48 days
Indication	:	**Swasa kasam** (BRONCHIAL ASTHMA), Mantharakasam.
Book Rf	:	Agathiyar vaithiya kaviyam-1500
Editoror Name	:	Munaiver.V.R.Madhavan
Edition	:	1st edition 1994

MANTHARA KASA LEHIYUM



PROPERTIES OF TRIAL DRUG

The trial drug Mantharakasa lehiyum consists of 7 herbal ingredients. Most of the ingredients are having pungent taste [kaarpu suvai]. Least among them belongs to bitter and astringent taste [kaippu & thuvarppu suvai]. Siddha system of medicine is based on five elements. A **Maruthuva Thanipadal** quotes the formation of six tastes from five elements.

Earth + Water	=	Sweet
Earth + Fire	=	Sour
Earth + Wind	=	Astringent
Water + Fire	=	Salt
Wind + Fire	=	Pungent
Wind + Space	=	Bitter

As per Maruthuva thanipaadal the action and characters of kaarpu, kaippu & thuvarppu suvai as mentioned below:

Action and character of Pungent taste

"நற்பசி யூக்கி.....கார்ப்பைச் சீர்
தூக்கியயில் வோர்க்குச் சொல்"

(மருத்துவத் தனிப்பாடல்)

Character of Pungent taste

"தொண்டையில் லுண்டாம் மிண்டு செய் பிணிகள்
.....ஐய விகாரம்
அழித்திடும் நாடி நாள அடைப்பினைக் கழற்றிய்யே."

(மருத்துவத் தனிப்பாடல்)

- The pungent taste stimulates appetite.
- It cures the diseases of throat
- It destroys the vitiated kapha.

Character and action of bitter taste

வேறு காரணம் விளைத்த வூண் வெறுப்
போட்டு மியல்பா யேற்க விரும்பாச்
சுவையாம் பித்தமைய விகர்ப்பங்.....
வாய்நீரூறல் அழற்சியும் தணிக்கும்
மெய்நீர்க் கசிவையுந் தடியையுந் தடியும்
ஊண்சலம் மலஞ்சலம் நிணசலம் என்பினுள் வறட்டும்.

(மருத்துவத் தனிப்பாடல்)

- Astringent taste changes the hatred towards food.
- It converts the vitiated kapha and pitha.
- It reduces the hyper secretions of glands in the body

Character of Astringent taste

"கட்டுவதுசற்றுக் கரகரப் பாக்கும்வது
திட்டமாய் தோற்பதனஞ் செய்வது- மட்டிற்
கொழுப்புநீர் மல்குங் கொழுப்பும் வரட்டல்
தொழிலாந் துவர்ப்பு சுவைக்கு"

(மருத்துவத் தனிப்பாடல்)

- Astringent taste controls the hyper secretion of glands in the body.

Character of Astringent taste

"பொல்ல வையம் மாற்றும் குளிர்ந்ததுவர்ப்பின் வேலை
கைப்பின் பண்பும் செய்கையும்"

(மருத்துவத் தனிப்பாடல்)

- It changes the vitiated kapha.

Considering the actions and characters of kaarppu, kaippu and thuvarppu suvai, the drug is formulated in such a way that the adverse effect of excessive kaarppu is counteracted by kaippu and thuvarppu suvai. Also, kaippu and thuvarppu suvai corrects the deranged dheeshakini in the body and produces good appetite. Both kaippu and thuvarppu suvai has the ability to reduce excessive secretion of the sputum and expel out by expectorant action. Hence kaarppu suvai, by its inherent property antagonizes kapha by having fire as its component.

Generally in kapha disease patient's complaints reduced appetite or anorexia. In Swasa kasam patients their condition gets worse if they suffer from dyspnoea particularly after food due to improper digestion. Siddhars had given us plethora of drugs, mostly combinations of herbs as compound drugs. The drug Mantharakasa lehiyum one among those formulations. Most of the ingredients of this drug have the property of expectorant, carminative, stomachic, stimulant, which suits for the kapha disease patients.

INGRIDIENTS OF THE TRIAL MEDICINE

1) Adathodai

Botanical name : A*dhatoda vasica Nees*

Family : Acanthaceae

Vernacular names:

Sans : Vasaka

English : Malabar-nut

Tamil : Adathodai

Mal : Ata-lotakam

Taste : Bitter

Potency : Hot

Division : Pungent

Parts used : Leaves, flower, Bark, Root

Actions : Antispasmodic, Expectorant, Germicide, Diuretic

Gunam

ஆடாதோ டையின் குணத்தை அடைவுட னுரைக்கக் கேளும்
பாடாத நாவும் பாடும் பரிந்துமே தோடம் போகும்
வாடாத பித்தஞ் சேத்ம ரோகங்கள் விலகிப் போகும்
நாடாது வியாதி தானும் நல்விழிக் குழலினா ளே. (ஏ.டு)

Chemical constituents

The major chemical constituent of A*dhatoda vasica* is bioactive pyrroloquinazoline alkaloid, vasicine about 1.3%. Includes other alkaloids viz, vasicol, vasicinone, adhatonine, vasicinol, vasicinolone.

Uses

The bronchodilatory and expectorant properties of the leaves are attributed to vasicine. The drug possesses abortifacient activity and significant antimicrobial activity against gingival inflammation and pyorrhea.

2) Kandankaththiri

Botanical Name : S*olanum surattense Burm.f*

Family : Solanaceae

Vernacular names:

San	**:**	Kanta-karika
English	**:**	Yellow berried night shade
Tamil	**:**	Kandankaththiri
Mal	**:**	Vellottuvalutina

Taste : Pungent
Potency : Hot
Division : Pungent
Parts Used : Leaves, Flower, Unripe Fruit, Fruit, Seeds, Root
Actions : Expectorant, Diuretic, Carminative
Gunam

காச சுவாசங் கதித்தஷய மந்தமனல்
வீசுசுரஞ் சன்னி விளைதோடம்- ஆசுறுங்கால்
இத்தரையு ணிற்கா, எரிகாரஞ் சேர்க்கண்டங்
கத்திரியுண் டாமாகிற் காண்.

-அகத்தியர் குணவாகடம்.

Chemical constituents

The major chemical constituent of S*olanum surattense* is steroidal alkaloid solasodine about 0.2% and also have steroidal alkaloids viz solamargine, beta solamargine, steroids viz cycloartenol, norcarpesterol, cholesterol and their derivatives.

Uses

Preliminary clinical trials of the drug have shown significant improvement in some respiratory diseases like bronchial asthma and the beneficial effects could be through depletion of histamine level.

3) Thuthuvalai

Botanical Name : *Solanum trilobatum, Linn.*

Family : Solanaceae

Vernacular names

Sans	**:**	Alarka
English	**:**	Climbing Brinjal
Tamil	**:**	Thuthuvalai
Mal	**:**	Mullakaththari

Taste : Mild Bitter, Pungent
Potency : Hot
Division : Pungent
Parts Used : Leaves, Flower, Unriped Fruit.
Actions : Stimulant, Expectorant, Tonic.
Gunam

தூது பத்திரி யூண்சுவை யாக்கும்பூ
தாது வைத்தழைப் பித்திடும் காயது
வாத பித்தக பத்தையு மாற்றுவேர்
ஓதும் வல்லிபன் நோயுமொ ழிக்குமே.

. - தேரையர் குணவாகடம்.

Chemical constituents

The major chemical constituents of *Solanum trilobatum* are alkaloids, sterols, saponins, phenolics, flavanoides and glycosides. Alkaloides such as soladunalinidine and tomatidine were isolated from leaf and stem.

Uses

It cures all the Kapha diseases. The aqueous and alcoholic extracts of solanaum trilobatum exhibited mast cell degranulation inhibition activity. It has antibacterial anti inflammatory, antioxidant, antifungal, antimicrobial actions.

4) Chitharathai

Botanical Name : A*lpinia officinarum.Linn*

Family : Zingiberaceae

Vernacular names

Sans : Rasna

English : Galangal the lesser, Java galangal.

Tamil : Chitharathai

Mal : Aratha.

Taste : Pungent

Potency : Hot

Division : Pungent

Parts Used : Root

Actions : Expectorant,Febrifuge,Stomachic .

Gunam

மார்பை யடர்பிணிசு **வாசகா சம்**மூலம்
சோபைதட்டச் சூர்வாத சோணிதநோய்-தீபச்
சுரத்தை யடுப்புர்பல் தூருறுகண் நேரின்
அரத்தை யெடுதுகள தாம்.

- தேரையர் குணவாகடம்.

Chemical constituents

The major chemical constituents of *Alpinia officinarum* are galangol, galangin and essential oil.

Uses

The root of this plant is used to cure vatha,kapha diseases, vomiting, eczema, cough, it is used to equalise all the three dhoases.

5) Chukku

Botanical Name : *Zingiber officinale, Rose*.

Family : Zingiberaceae

Vernacular names

Sans : Nagaram

English : Dried Ginger

Tamil : Chukku

Mal : Chukku

Taste : Pungent

Potency : Hot

Division : Pungent

Parts used : Rhizome

Actions : Stimulant, Stomachic, Carminative

Gunam

சூலைமந்தம் நெஞ்செரிப்பு தோடமேப் பம்மழலை
மூலம் இரைப்பிருமல் மூக்குநீர்-வாலகப
தோடமதி சாரந் தொடர்வாத குன்மநீர்த்
தோடம்ஆ மம்போக்குஞ் சுக்கு.

- அகத்தியர் குணவாகடம்.

Chemical constituents

The major chemical constituents of *Zingiber officinale* are oleoresin comprising of nonvolatile pungent principles {gingerols-mainly [6]-gingerol} nonpungent substances {fats and waxes} and Volatile oil {1.5-2.2%} containing sesquiterpene hydrocarbons viz., alpha zingiberene, beta sesquiphellandrene and ar-curcumene as major constituents.

Uses

The constituents of ginger are thought to play a role in the anti-inflammatory activity exhibited by the drug. Ginger also possesses hypolipidemic, antidiabetic, cardiotonic and antiatherosclerotic properties**.**

6) Milagu

Botanical Name	**:**	P*iper nigrum, Linn*
Family	**:**	Piperaceae

Vernacular names

Sans	**:**	Maricha
Hindi	**:**	Kali - mirch
English	**:**	Black pepper
Tamil	**:**	Milagu
Mal	**:**	Kurumulaku

Taste **:** Bitter, Pungent

Potency **:** Hot

Division **:** Pungent

Parts used **:** Seed, Stem

Actions **:** Carminative, Antidote, Stimulant

Gunam

சீதசுரம் பாண்டு **சிலேத்மங்** கிராணிகுன்மம்
வாதம் அருசிபித்தம் மாமூலம் – ஓதுசன்னி
யாசமபஸ் மாரம் அடன்மேகம் **காசமிவை**
நாசங் கறிமிளகினால்.

\- அகத்தியர் குணவாகடம்.

Chemical constituents

The major chemical constituents of *Piper nigrum* are chavicine, piperine, piperidine, piperetine and essential oil.

Uses

It is used to treat asthma, chronic indigestion, colon toxins, obesity, colic, intermittent fever, cold extremities, sinusitis, gastric ailments diarrhea and also have antibacterial, antifungal, larvicidal activities.

7) Thippili

Botanical name : P*iper longum*, Linn.

Family : Piperaceae

Vernacular names

Sans : Pippali

English : Long pepperr

Tamil : Thippili

Mal : Thippili

Taste : Astrigent

Potency : Hot

Division : Sweet

Parts used : Seeds, Unriped fruit

Actions : Stimulant, Carminative

Gunam

ஈளை யிரும லிரைப்**புப் பசப்பிணிகள்**
மாள வொழியாமல் வாட்டுமே- யாளுமுறை
பாங்கா யறிந்துசெய்வீர் பண்டிதத்தைப் பண்டிதரே
வேங்கைவாய்ப் பான்கணை மெய்.

-தேரன் வெண்பா

Chemical constituents

The major chemical constituents of P*iper longum* are Piperine and volatile oil and also have Piperlonguminine, Piplartine a waxy alkaloid N-isobutyldecatrans 2-trans-4-dinamide, piperidine alkaloids- pipernonaline piperundecalidine, sesamine, resin.

Uses

The fruits have anti allergic and anti asthmatic activities.

THE INGREDIENTS OF MANTHARAKASA LEHIYUM

Adathodai

Kandankathiri

Thuthuvelai

Chukku

Milagu

Thippili

Chitharathai

Honey

White sugar

Ghee

BIOCHEMICAL ANALYSIS OF TRIAL DRUG

BIOCHEMICAL ANALYSIS OF MANTHARAKASA LEHIYUM

S.NO	EXPERIMENT	OBSERVATION	INFERENCE
	1.Test For Acid Radicals		
1.	**Test For Sulphate :** 2ml of the above prepared extract is taken in a test tube to this added 2ml of 4% ammonium oxalate solution.	No cloudy appearance present	Absence of Sulphate
2.	**Test For Chloride:** 2ml of the above prepared extract is added with 2ml of dil-HNO_3 till the effervescence ceases. Then 2 ml of silver nitrate solution is added.	Cloudy appearance present	Presence of **Chloride**
3	**Test For Phosphate:** 2ml of the extract is treated with 2ml of ammonium molybdate solution and 2ml of con.HNO_3	Yellow colour appearance	Presence of **Phosphate**
4.	**Test For Carbonate:** 2ml of the extract is treated with 2ml magnesium sulphate solution	No cloudy appearance	Absence of Carbonate
5.	**Test For Fluoride & Oxalate:** 2ml of extract is added with 2ml of dil. Acetic acid and 2ml calcium chloride solution and heated.	No cloudy appearance present.	Absence of fluoride and oxalate
6.	**Test For Nitrate:** 1gm of the substance is heated with copper turning and concentrated H2So4 and viewed the test tube vertically down	No Brown gas is evolved	Absence of Nitrate

7.	**Test For Sulphide:** 1gm of the substance is treated with 2ml of con. HCL	No Rotten Egg Smelling gas evolved	Absence of Sulphide
8.	**Test For Nitrite:** 3 drops of the extract is placed on a filter paper, on that - 2 drops of acetic acid and 2 drops of Benzidine solution is placed.	No Characteristic changes	Absence of Nitrite
9.	**Test For Borate:** 2 Pinches of the substance is made into paste by using sulphuric acid and alcohol (95%) and introduced into the blue flame.	Bluish green colour flame not appeared	Absence of Borate
	II. Test For Basic Radicals		
1.	**Test For Lead:** 2ml of the extract is added with 2ml of potassium iodine solution.	No yellow precipitate is obtained.	Absence of Lead
2.	**Test For Copper:** 2ml of extract is added with excess of ammonia solution.	No blue color precipitate formed.	Absence of Copper
3.	**Test For Aluminium:** To the 2ml of extract sodium hydroxide is added in drops to excess.	No characteristic changes.	Absence of Aluminium
4.	**Test For Iron:** To the 2ml of extract add 2ml of ammonium thiocyanate solution.	Mild red colour appear	Presence of **Iron**
5.	**Test For Zinc**: To 2ml of the extract sodium hydroxide solution is added in drops to excess	White precipitate is not formed	Absence of Zinc

6.	**Test For Calcium:** 2ml of the extract is added with 2ml of 4% ammonium oxalate solution	Cloudy appearance and white precipitate is not obtained	Absence of Calcium
7.	**Test For Magnesium**: To 2ml of extract sodium hydroxide solution is added in drops to excess.	White precipitate is not obtained	Absence of Magnesium
8.	**Test For Ammonium**: To 2ml of extract few ml of Nessler's reagent and excess of sodium hydroxide solution are added.	No Brown colour appeared	Absence of Ammonium
9.	**Test For Potassium:** A pinch of substance is treated with 2ml of sodium nitrite solution and then treated with 2ml of cobalt nitrate in 30% glacial acetic acid.	No Yellowish precipitate is obtained.	Absence of Potassium
10.	**Test For Sodium:** 2 pinches of the substance is made into paste by using HCl and introduced into the blue flame of Bunsen burner.	Yellow colour flame appeared	Presence of **Sodium**
11.	**Test For Mercury:** 2ml of the extract is treated with 2ml of sodium hydroxide solution.	No yellow precipitate is obtained	Absence of Mercury
12.	**Test For Arsenic:** 2ml of the extract is treated with 2ml of sodium hydroxide solution.	No brownish red precipitate is obtained	Absence of Arsenic

S.NO	EXPERIMENT	OBSERVATION	INFERENCE
	III.Miscellaneous		
1.	**Test For Starch:** 2ml of extract is treated with weak iodine solution	Blue colour developed	Presence of **Starch**
2.	**Test For Reducing Sugar:** 5ml of Benedict's qualitative solution is taken in a test tube and allowed to boil for 2 minutes and added 8 to 10 drops of the extract and again boil it for 2 minutes. The colour changes are noted.	Brick red colour developed	Presence of **Reducing sugar**
3.	**Test For The Alkaloids:** a) 2ml of the extract is treated with 2ml of potassium lodide solution. b) 2ml of the extract is treated with 2ml of picric acid. c) 2ml of the extract is treated with 2ml of phosphotungstic acid.	Yellow colour developed	Presence of **Alkaloid**
4.	**Test For Tannic Acid:** 2ml of extract is treated with 2ml of ferric chloride solution	Block precipitate is obtained	Presence of **Tannic acid**
5.	**Test For Unsaturated Compound**: To the 2ml of extract 2ml of Potassium permanganate solution is added.	Potassium permanganate is decolourised	Presence of **unsaturated compound**
6.	**Test For Amino Acid**: 2 drops of the extract is placed on a filter paper and dried well..	No Violet colour developed	Absence of Amino acids

S.NO	EXPERIMENT	OBSERVATION	INFERENCE
	III.Miscellaneous		
7.	**Test For Type Of Compound**: 2ml of the extract is treated with 2 ml of ferric chloride solution.	No Brown colour developed No red colour developed No violet colour developed No Blue colour developed.	Absence of Oxy quinole, epinephrine and Pyro catechol Anti pyrine, Alipathic amino acids and meconic acid are absent. Salicylate and resorcinol are absent. Morphine, Phenol cresol and hydroquinone are absent

RESULTS OF BIOCHEMICAL ANALYSIS

S.no	Analytical test	Inference
1.	**Sulphate**	Absence of Sulphate
2.	**Chloride**	Presence of **Chloride**
3.	**Phosphate**	Presence of **Phosphate**
4.	**Carbonate**	Absence of Carbonate
5.	**Fluoride & Oxalate**	Absence of fluoride and oxalate
6.	**Nitrate**	Absence of Nitrate
7.	**Sulphide**	Absence of Sulphide
8.	**Nitrite**	Absence of Nitrite
9.	**Borate**	Absence of Borate
10.	**Lead**	Absence of Lead
11.	**Copper**	Absence of Copper
12.	**Aluminium**	Absence of Aluminium
13.	**Iron**	Presence of **Iron**
14.	**Zinc**	Absence of Zinc
15.	**Calcium**	Absence of Calcium
16.	**Magnesium**	Absence of Magnesium
17.	**Ammonium**	Absence of Ammonium
18.	**Pottasium**	Absence of Potassium
19.	**Sodium**	Presence of **Sodium**
20.	**Mercury**	Absence of Mercury
21.	**Arsenic**	Absence of Arsenic
22.	**Starch**	Presence of **Starch**
23.	**Reducing sugar**	Presence of **Reducing sugar**
24.	**Alkaloids**	Presence of **Alkaloid**
25.	**Tannic acid**	Presence of **Tannic acid**
26.	**Unsaturated compound**	Presence of **Unsaturated compound**
27.	**Amino acid**	Absence of Amino acids
28.	**Oxyquinole, Epinephrine, Pyrocatechol**	Absence of Oxy quinole, epinephrine and Pyro catechol.

PHYSICOCHEMICAL ANALYSIS

PHYSICOCHEMICAL ANALYSIS OF MANTHARAKASA LEHIYUM

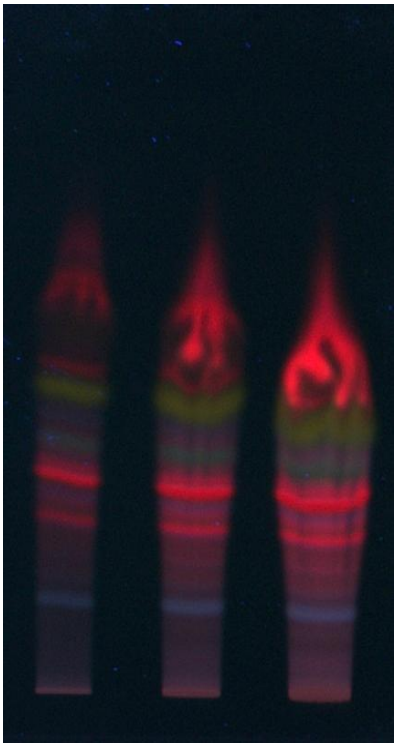
S.NO	PARAMATERS	VALUES
1.	Loss on drying at 105^0 C	17.58%
2.	Total ash	3.233%
3.	Water soluble ash	1.996%
4.	Acid soluble ash	0.054%
5.	Water soluble extractives	47.482%
6.	Alcohol soluble extractives	57.550%
7.	Fat content	4.350%
8.	Total solid content	82.42%
9.	pH	6.7
10.	Reducing sugar	7.83%
11.	Total sugar	47.81%

HPTLC REPORT OF MANTHARAKASA LEHIYUM

Sample Name/ID – Manthara Kasa Lehiyam

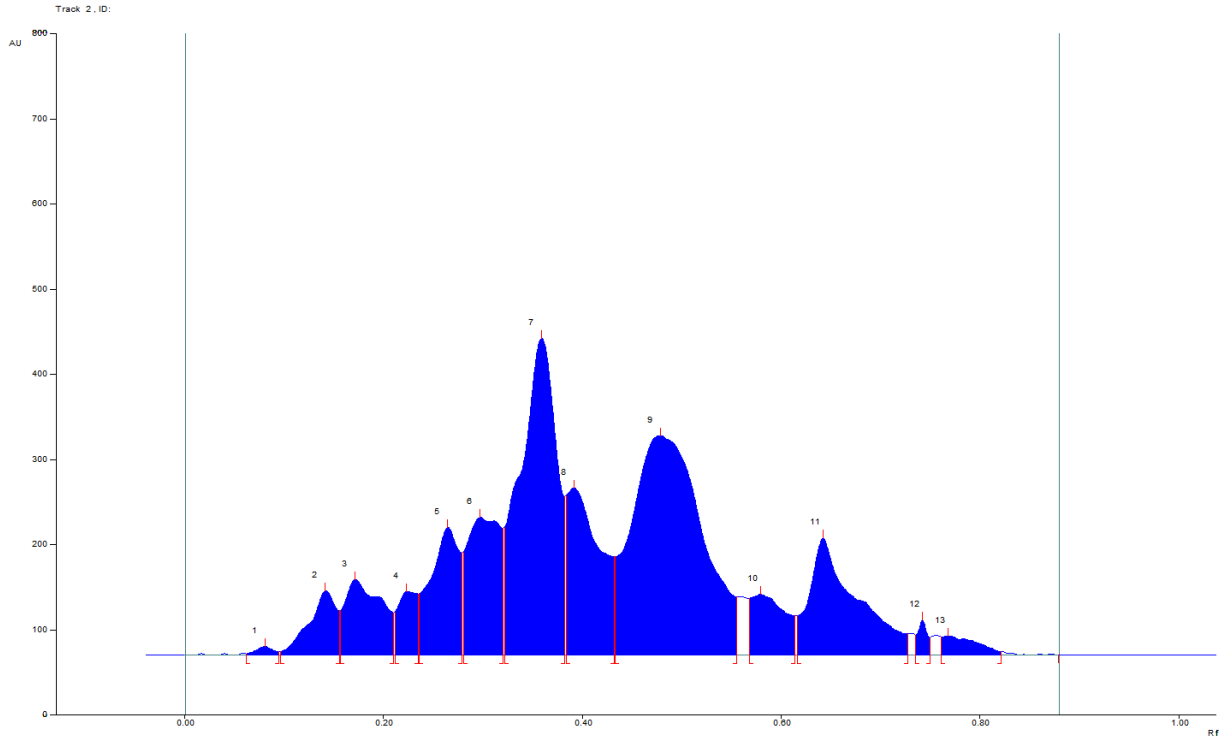
Stationary Phase - Silica Gel 60 F_{254}

Mobile Phase - Toluene: Ethyl Acetate: Formic Acid (5: 2.5: 0.5 v/v/v)



λ = 254 nm		λ = 366 nm		λ = 575 nm (Derivatized)	
Color	**R_f value(s)**	**Color**	**R_f value(s)**	**Color**	**R_f value(s)**
Green	0.14	Blue	0.15	Grey	0.06
Green	0.18	Light Pink	0.29	Green	0.17
Green	0.26	Pink	0.35	Blue	0.21
Green	0.30	Light Pink	0.38	Light Grey	0.34
Green	0.35	Green	0.42	Light Grey	0.38
Green	0.38	Green	0.50	Grey	0.42
Green	0.42	Pink	0.52	Grey	0.46
Green	0.50			Grey	0.51
				Dark Grey	0.65
				Grey	0.72

HPTLC Chromatogram of Mantharakasalehiyum at 254 nmUV:

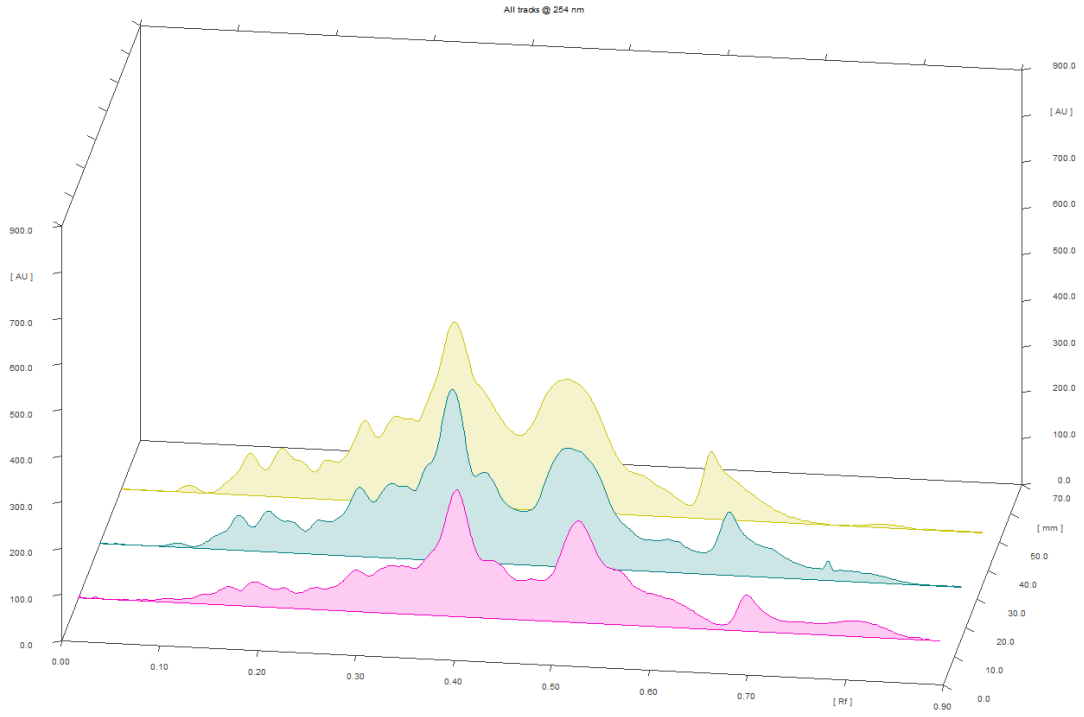


Peak Table of Mantharakasalehiyum at 254 nmUV:

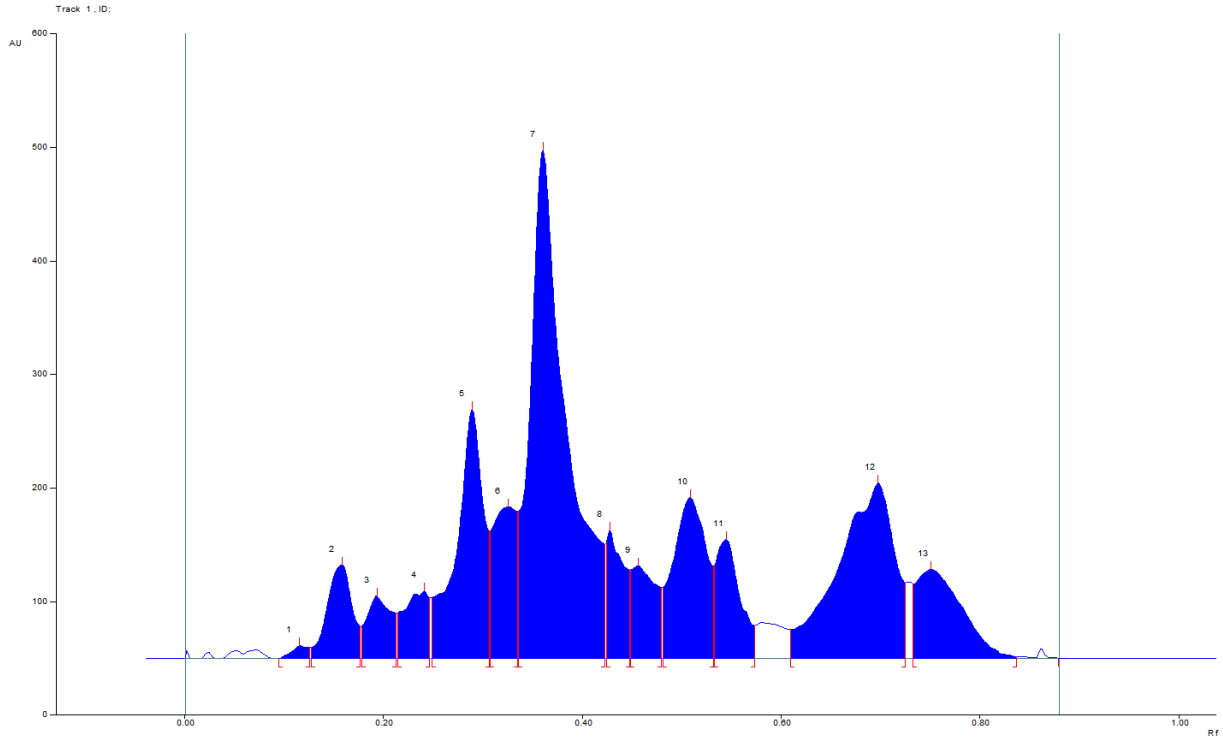
Track 2, ID:

Peak	Start Position	Start Height	Max Position	Max Height	Max %	End Position	End Height	Area	Area %
1	0.06 Rf	1.4 AU	0.08 Rf	10.0 AU	0.61 %	0.09 Rf	3.9 AU	152.0 AU	0.26 %
2	0.10 Rf	4.0 AU	0.14 Rf	75.5 AU	4.56 %	0.16 Rf	51.9 AU	1842.6 AU	3.15 %
3	0.16 Rf	52.3 AU	0.17 Rf	88.7 AU	5.35 %	0.21 Rf	49.5 AU	2897.0 AU	4.95 %
4	0.21 Rf	50.6 AU	0.22 Rf	74.6 AU	4.50 %	0.24 Rf	71.8 AU	1294.2 AU	2.21 %
5	0.24 Rf	72.0 AU	0.26 Rf	149.8 AU	9.04 %	0.28 Rf	19.5 AU	3865.9 AU	6.60 %
6	0.28 Rf	120.3 AU	0.30 Rf	162.0 AU	9.77 %	0.32 Rf	48.5 AU	4820.0 AU	8.23 %
7	0.32 Rf	149.5 AU	0.36 Rf	371.8 AU	22.43 %	0.38 Rf	86.3 AU	12391.1 AU	21.16 %
8	0.38 Rf	187.2 AU	0.39 Rf	196.2 AU	11.84 %	0.43 Rf	15.4 AU	5825.4 AU	9.95 %
9	0.43 Rf	115.5 AU	0.48 Rf	257.6 AU	15.54 %	0.56 Rf	68.1 AU	16389.5 AU	27.99 %
10	0.57 Rf	66.5 AU	0.58 Rf	71.2 AU	4.29 %	0.61 Rf	46.3 AU	2190.6 AU	3.74 %
11	0.62 Rf	46.6 AU	0.64 Rf	137.2 AU	8.28 %	0.73 Rf	24.7 AU	5825.6 AU	9.95 %
12	0.74 Rf	23.5 AU	0.74 Rf	40.7 AU	2.46 %	0.75 Rf	20.3 AU	354.0 AU	0.60 %
13	0.76 Rf	21.3 AU	0.77 Rf	21.9 AU	1.32 %	0.82 Rf	3.8 AU	705.3 AU	1.20 %

3D Chromatogram of Mantharakasalehiyum at 254 nmUV:



HPTLC Chromatogram of Mantharakasalehiyum at 366 nmUV:

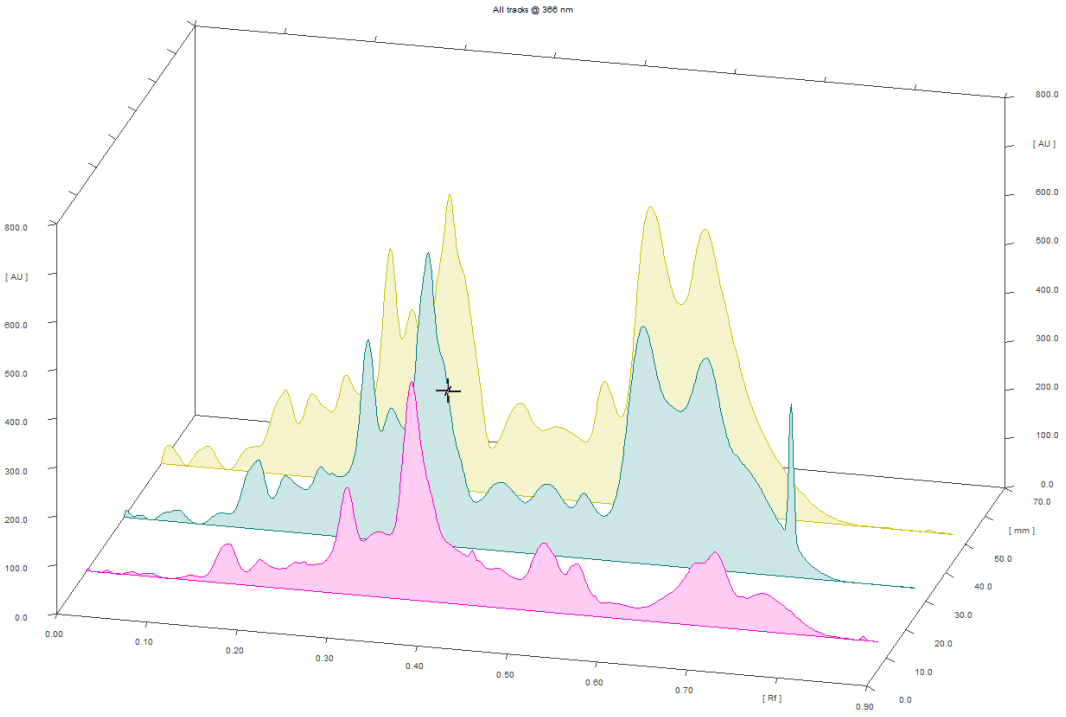


Peak Table of Mantharakasalehiyum at 366 nmUV:

Track 1, ID:

Peak	Start Position	Start Height	Max Position	Max Height	Max %	End Position	End Height	Area	Area %
1	0.09 Rf	0.0 AU	0.12 Rf	11.1 AU	0.66 %	0.13 Rf	9.5 AU	165.9 AU	0.34 %
2	0.13 Rf	9.7 AU	0.16 Rf	82.4 AU	4.90 %	0.18 Rf	28.2 AU	1840.3 AU	3.79 %
3	0.18 Rf	28.3 AU	0.19 Rf	54.8 AU	3.26 %	0.21 Rf	40.0 AU	1214.5 AU	2.50 %
4	0.21 Rf	40.1 AU	0.24 Rf	59.2 AU	3.52 %	0.25 Rf	53.5 AU	1318.6 AU	2.72 %
5	0.25 Rf	53.8 AU	0.29 Rf	219.2 AU	13.03 %	0.31 Rf	12.4 AU	5310.3 AU	10.95 %
6	0.31 Rf	112.6 AU	0.33 Rf	133.6 AU	7.94 %	0.34 Rf	29.6 AU	2804.5 AU	5.78 %
7	0.34 Rf	129.7 AU	0.36 Rf	447.5 AU	26.60 %	0.42 Rf	00.3 AU	14763.5 AU	30.43 %
8	0.42 Rf	102.1 AU	0.43 Rf	113.2 AU	6.73 %	0.45 Rf	78.0 AU	1767.9 AU	3.64 %
9	0.45 Rf	78.1 AU	0.46 Rf	81.8 AU	4.86 %	0.48 Rf	62.2 AU	1823.9 AU	3.76 %
10	0.48 Rf	62.6 AU	0.51 Rf	141.6 AU	8.42 %	0.53 Rf	80.9 AU	4227.1 AU	8.71 %
11	0.53 Rf	81.8 AU	0.55 Rf	104.9 AU	6.24 %	0.57 Rf	29.0 AU	2249.3 AU	4.64 %
12	0.61 Rf	25.5 AU	0.70 Rf	154.2 AU	9.16 %	0.73 Rf	66.6 AU	7764.9 AU	16.01 %
13	0.73 Rf	65.8 AU	0.75 Rf	78.5 AU	4.67 %	0.84 Rf	1.5 AU	3264.6 AU	6.73 %

3D Chromatogram of Mantharakasalehiyum at 366 nmUV:



OBSERVATION AND RESULTS

OBSERVATION AND RESULTS

Results were observed with respect to the following criteria

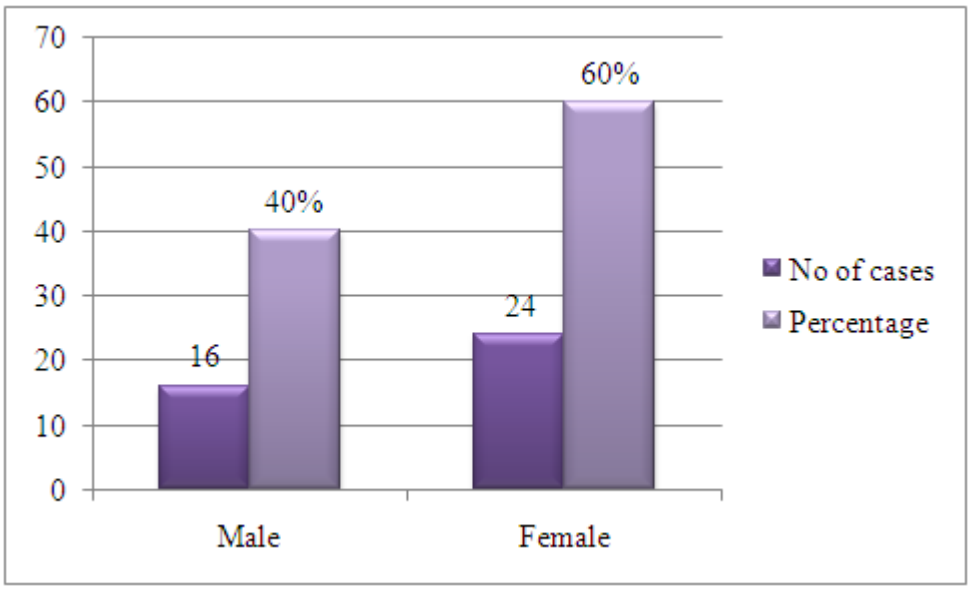
1. Sex Distribution
2. Age Distribution
3. Kaalam Distribution
4. Occupation Distribution
5. Duration of Illness
6. Habits
7. Diet
8. Religion Distribution
9. Socio-economic status
10. Treatment history
11. Triggering factors
12. Marital History
13. Family history
14. Thegi Distribution
15. Thinai Distribution
16. Paruva Kaalam Distribution
17. Gunam Distribution
18. Clinical features
19. Gnanendhiriyam (Imporigal)
20. Kanmendhiriyam
21. Kosam
22. Mukkutram a)Vadham b)Pitham c) Kabam
23. Ezhu Udal Kattugal
24. Ennvagai Thervugal
25. Neikuri
26. Laboratory Analysis
27. Primary Outcome (PEFR)
28. Secondary Outcome - Clinical Features (AT)

For this study 40 cases were selected.

SEX DISTRIBUTION

TABLE NO: 1

GENDER	NO OF CASES	PERCENTAGE (%)
MALE	16	40
FEMALE	24	60
TOTAL	40	100

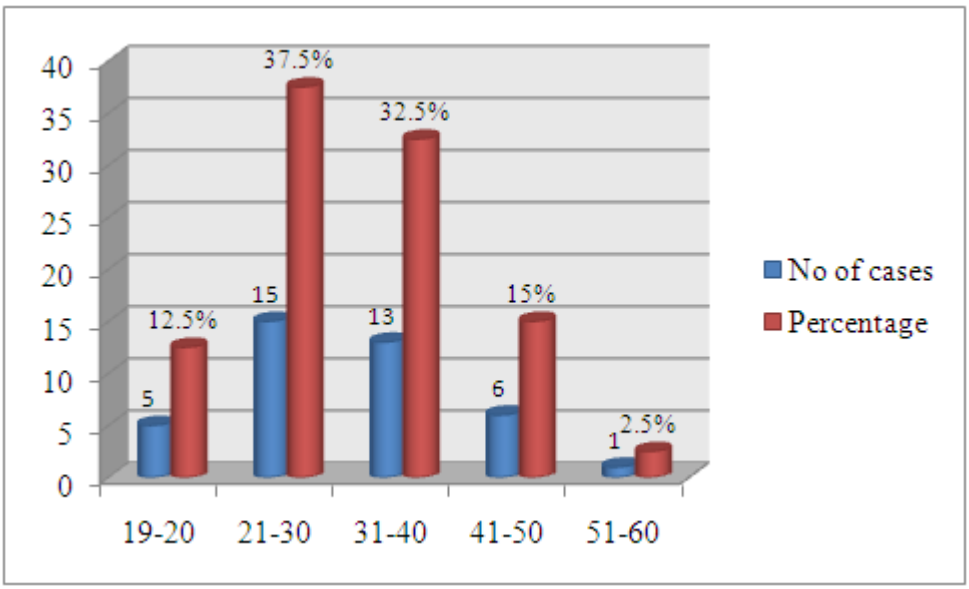


Inference: Out of 40 cases, 16 cases (40%) were **male**, 24 cases (60%) were **female**.

AGE DISTRIBUTION

TABLE NO: 2

S.NO	AGE IN YEARS	NO OF CASES	PERCENTAGE (%)
1	19-20	5	12.5
2	21-30	15	37.5
3	31-40	13	32.5
4	41-50	6	15
5	51-60	1	2.5
	Total	40	100

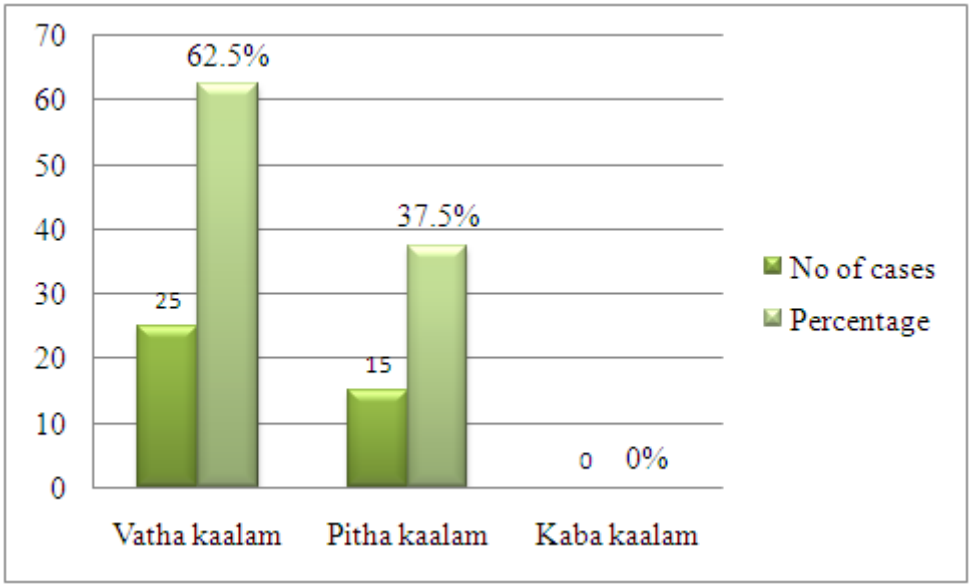


Inference: Out of cases, 5 cases (12.5%) were in the age group **between 19-20**, 15 cases (37.5%) were in the age group **between 21-30**, 13 cases (32.5%) were in the age group **between 31-40**, 6 cases (15%) were in the age group **between 41-50** and 1 case (2.5%) was in the age group **between 51-60.**

DISTRIBUTION OF CASES BY KAALAM (LIFE SPAN)

TABLE NO: 3

KAALAM	NO OF CASES	PERCENTAGE (%)
Vadha kaalam 1-33 Years	25	62.5
Pitha kaalam 34-66Years	15	37.5
Kaba kaalam 67-100 years	0	0
Total	40	100

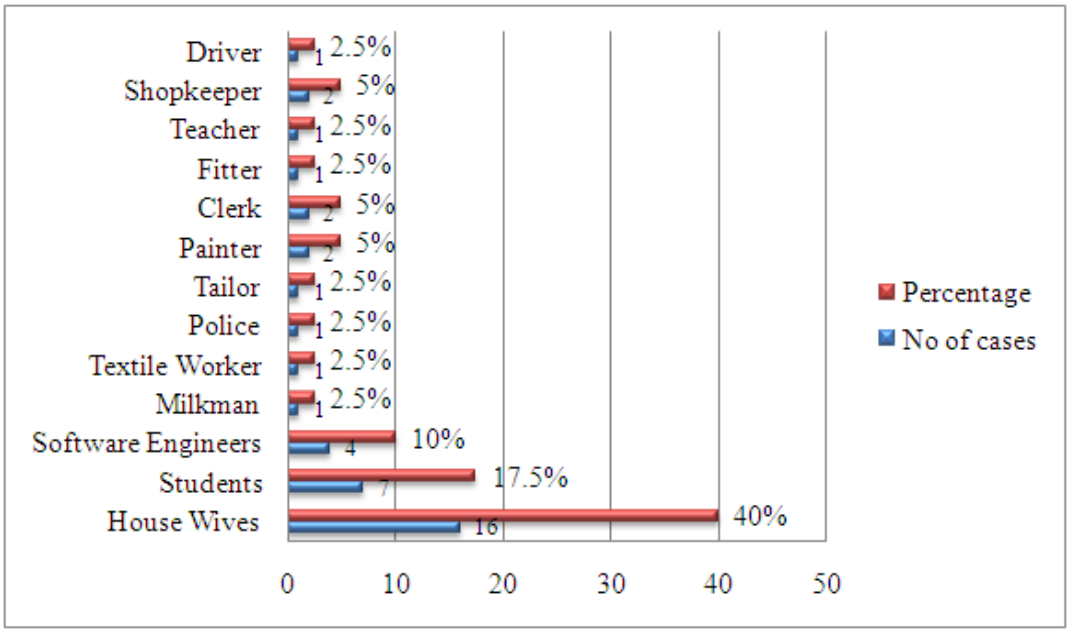


Inference: Out of 40 cases, 25 cases (62.5%) were found to be affected in their **Vadha kaalam (Between 1-33 Years)** and 15 Cases (37.5%) were found to be affected in their **Pitha Kaalam (Between 34-66Years).**

OCCUPATION DISTRIBUTION

TABLE NO: 4

S.NO	OCCUPATION	NO OF CASES	PERCENTAGE (%)
1	House Wives	16	40
2	Students	7	17.5
3	Software Engineers	4	10
4	Milkman	1	2.5
5	Textile Worker	1	2.5
6	Police	1	2.5
7	Tailor	1	2.5
8	Painter	2	5
9	Clerk	2	5
10	Fitter	1	2.5
11	Teacher	1	2.5
12	Shopkeeper	2	5
13	Driver	1	2.5

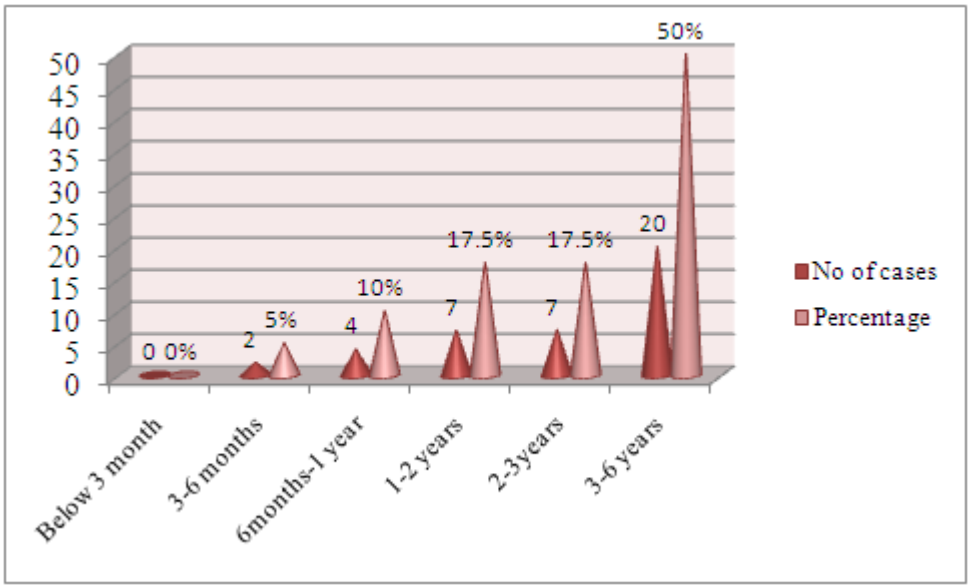


Observation: Out of 40 cases, 16 cases (40%) were **House wives**, 7 cases (17.5%) were **Students,** 4 cases (10%) were **Software engineers,** 2 cases (5%) were **Painter**, 2 cases (5%) were **Clerk,** 2 cases (5%) were **Shopkeeper, 1 case (2.5%)** was **Milkman,** 1 case (2.5%) was **Textile worker,** 1 case (2.5%) was **Police,** 1 case (2.5%) was **Tailor,** 1 case (2.5%) was **Fitter**, 1 case (2.5%) was **Teacher** and 1 case (2.5%) was **Driver.**

DISTRIBUTION OF CASES BY DURATION ILLNESS

TABLE NO: 5

S.NO	DURATION	NO OF CASES	PERCENTAGE (%)
1	Below 3 month	0	0
2	3-6 months	2	5
3	6months-1 year	4	10
4	1-2 years	7	17.5
5	2-3years	7	17.5
6	3-6 years	20	50



Inference: Out of 40 cases, 2 cases (5%) were affected by the illness from **3-6 months**, 4 cases **(10%)** were affected by the illness from **6months-1year**, 7 cases (17.5%) were affected by the illness from **1-2 years**, 7 cases (17.5%) were affected by the illness from **2-3 years** and 20 cases (50%) were affected by the illness from **3-6 years**.

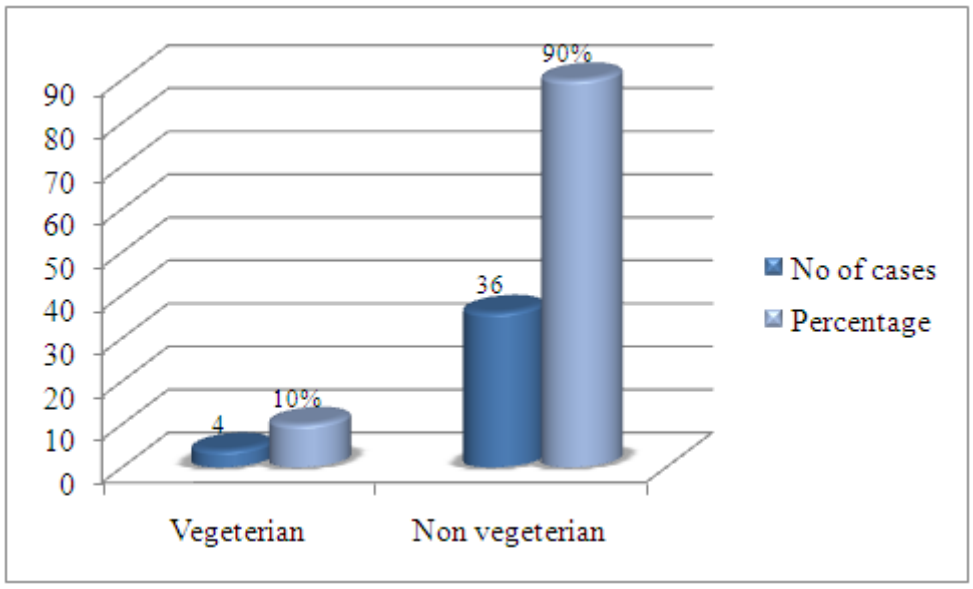
6. HABITS

All the 40 cases are **non smokers, non alcohol consumers** and **non chewer of betel nut**.

DIET HISTORY

TABLE NO: 7

S.NO	DIET	NO OF CASES	PERCENTAGE (%)
1	Vegetarian	4	10
2	Non vegetarian	36	90

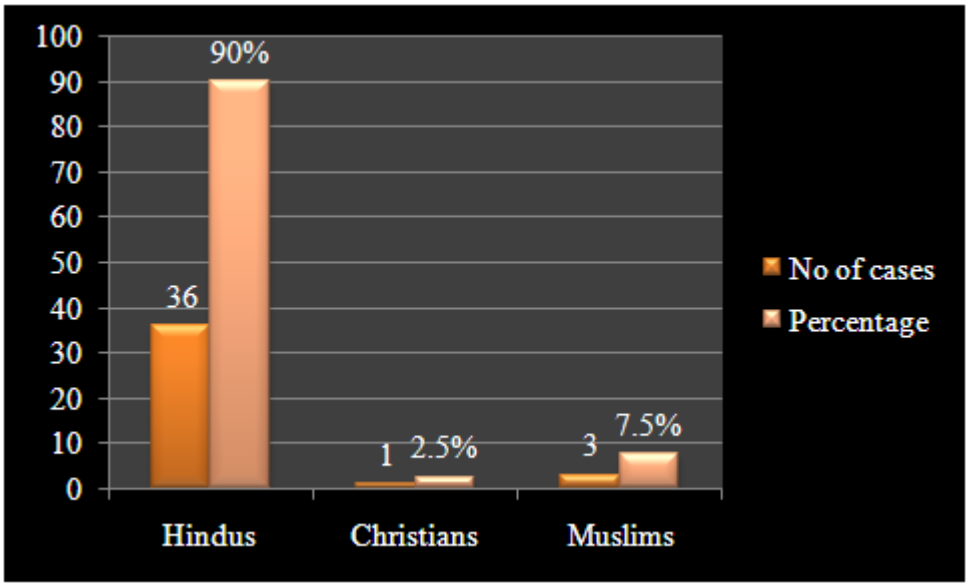


Inference: Out of 40 cases, 36 cases (90%) were **Non vegetarian**, 4 cases (10%) were **vegetarian**.

DISTRIBUTION OF CASES BY RELIGION

TABLE NO: 8

S.NO	RELIGION	NO OF CASES	PERCENTAGE
1	Hindus	36	90
2	Christians	1	2.5
3	Muslims	3	7.5

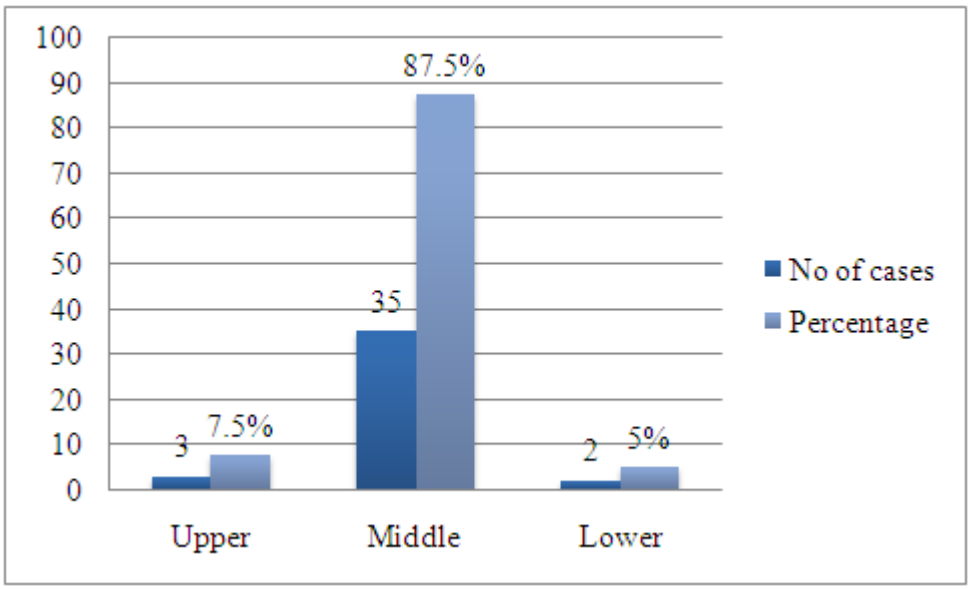


Inference: Out of 40 cases, 36 cases (90%) were **Hindus**, 1 case (2.5%) was **Christian** and 3 cases (7.5%) were **Muslims**.

SOCIOECONOMIC STATUS DISTRIBUTION

TABLE NO: 9

S.NO	SOCIO ECONOMIC STSTUS	NO OF CASES	PERCENTAGE (%)
1	Upper	3	7.5
2	Middle	35	87.5
3	Lower	2	5

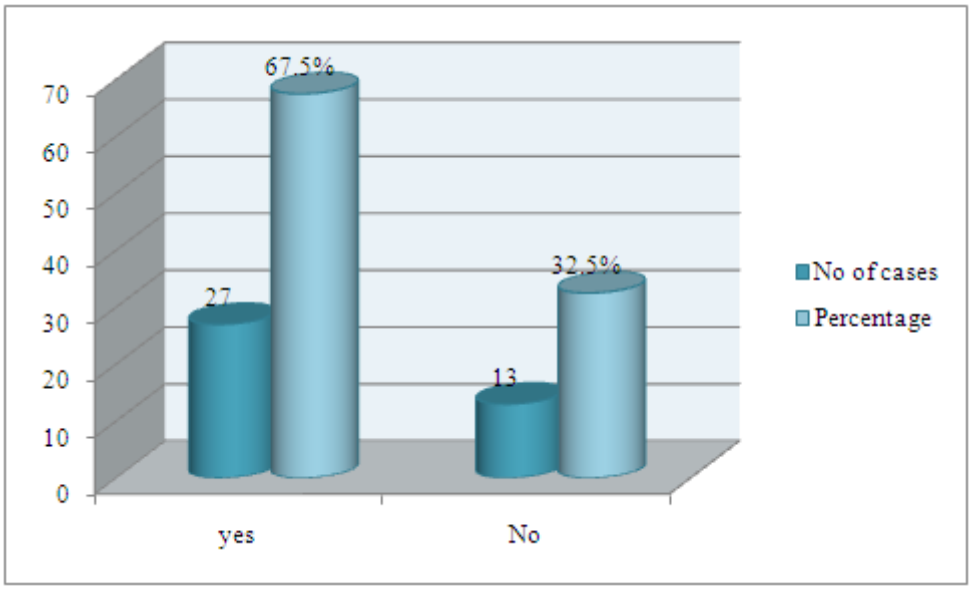


Observation: The incidence of the disease was found to be higher 35 cases (87.5%) in **middle class**, 3 cases (7.5%) were found in **upper class** and 2 cases (5%) were found in **lower class**.

TREATMENT HISTORY

TABLE NO: 10

S.NO	TREATMENT HISTORY	NO OF CASES	PERCENTAGE %
1	Yes	27	67.5
2	No	13	32.5

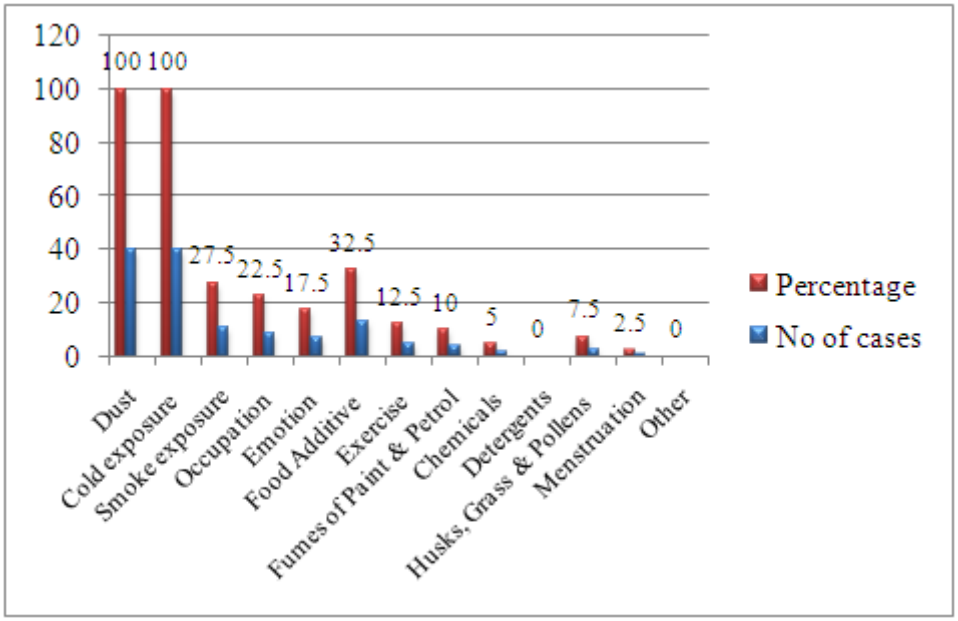


Inference: Out of 40 cases, 27 cases (67.5%) had taken other modes of treatment in the past and 13 cases (32.5%) had not taken any modes of treatment.

DISTRIBUTION OF TRIGGERING FACTORS

TABLE NO: 11

S. NO	TRIGGERING FACTORS	NO OF CASES	PERCENTAGE (%)
1	Dust	40	100
2	Cold exposure	40	100
3	Smoke exposure	11	27.5
4	Occupation	9	22.5
5	Emotion	7	17.5
6	Food Additive	13	32.5
7	Exercise	5	12.5
8	Fumes of Paint & Petrol	4	10
9	Chemicals	2	5
10	Detergents	0	0
11	Husks, Grass & Pollens	3	7.5
12	Menstruation cycle	1	2.5
13	Other	0	0



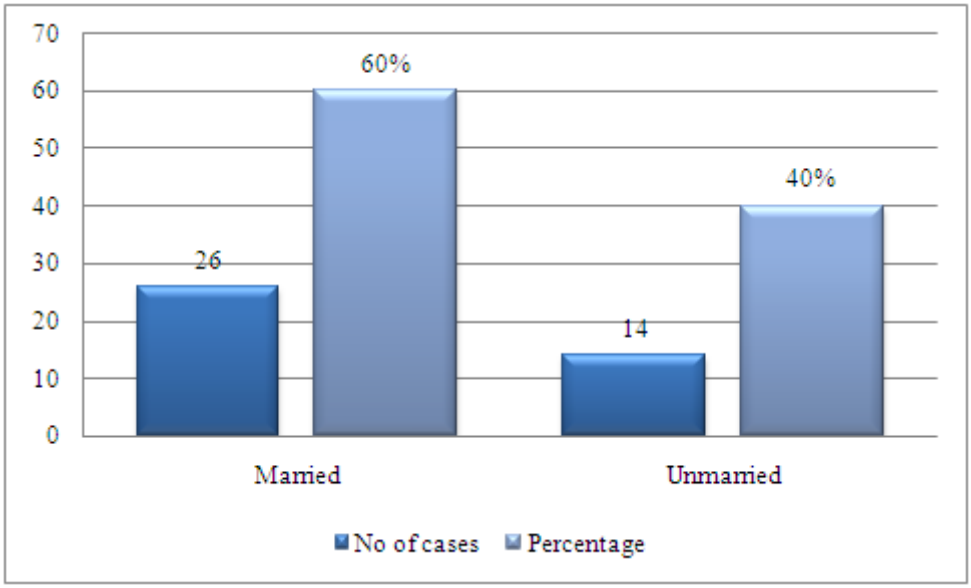
Inference:

- In all the 40 cases (100%) **Dust and cold** were the triggering factors**.**
- In 13 cases (32.5%) **food additive** was a triggering factor.
- In 11 cases (27.5%) **smoke** was a triggering factor.
- In 9 cases (22.5%) **occupation** was a triggering factor.
- In 7 cases (17.5%) **emotion** was a triggering factor.
- In 5 cases (12.5%) **exercise** was a triggering factor.
- In 4 cases (10%) **fumes of paint & petrol** was a triggering factor.
- In 3 cases (7.5%) **husks, grass, pollens** were a triggering factor
- In 2 cases (5%) **chemicals** was a triggering factor.
- In 1 case (2.5%) wheezing occurred on **menstruation cycle.**

MARITAL HISTORY

TABLE NO: 12

S.NO	MARITAL HISTORY	NO OF CASES	PERCENTAGE %
1.	Married	26	60
2.	Unmarried	14	40

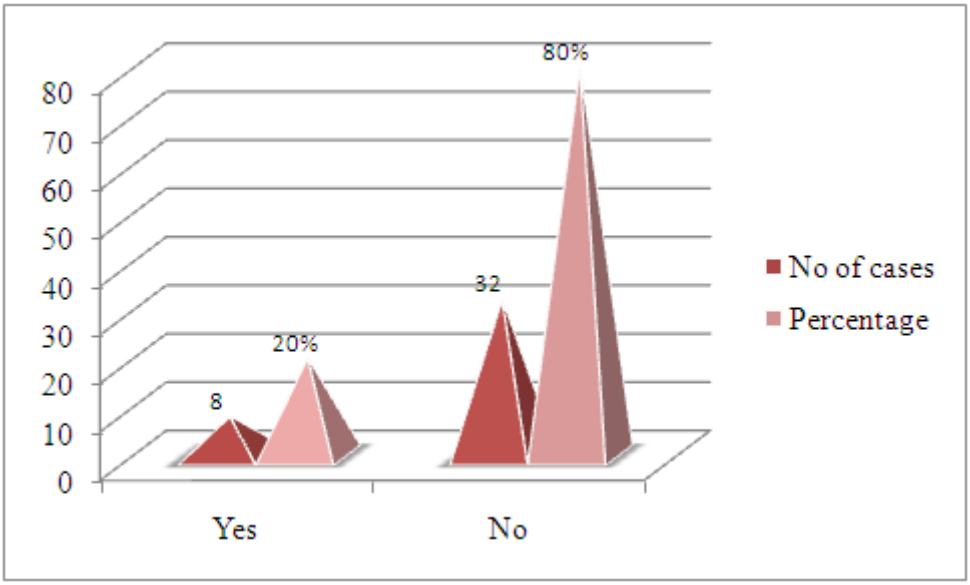


Inference: Among 40 cases, 26 cases (60%) were **married** and 14 cases (40%) were **unmarried**.

FAMILY HISORY

TABLE.NO: 13

S.NO	FAMILY HISTORY	NO OF CASES	PERCENTAGE (%)
1	Yes	8	20
2	No	32	80

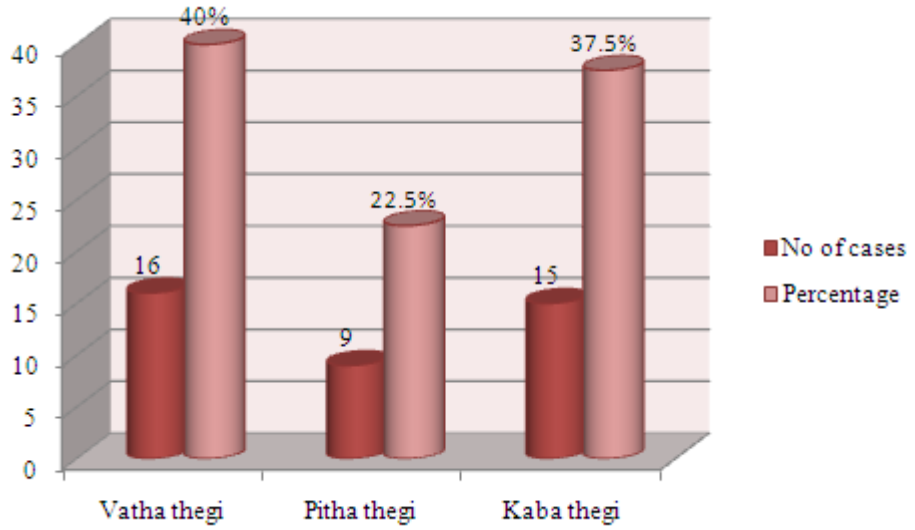


Inference: Among 40 cases, 32 cases (80%) reported **negative** family history of similar illness and 8 cases (20%) reported **positive** family history of similar illness.

THEGI DISTRIBUTION

TABLE NO: 14

S.NO	TYPES OF THEGI	NO OF CASES	PERCENTAGE %
1.	Vatha thegi	16	40
2.	Pitha thegi	9	22.5
3.	Kaba thegi	15	37.5

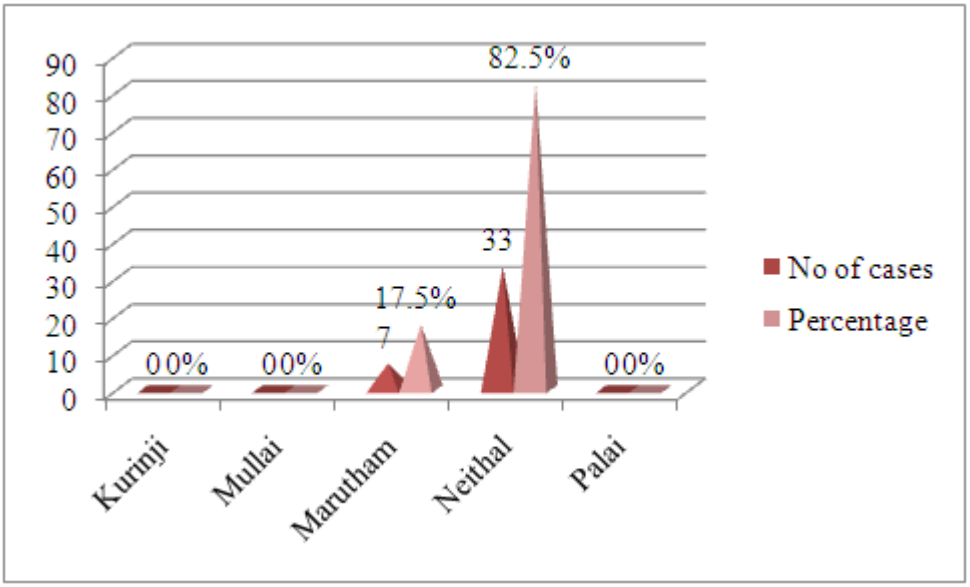


Inference: Out of 40 cases, 16 cases (40%) were **Vadha thegi,** 9 cases (22.5%) were **Pitha thegi** and 15 Cases (37.5%) were **Kaba thegi.**

DISTRIBUTION OF CASES BY THINAI (LAND)

TABLE NO: 15

S.NO	THINAI (LAND)	NO OF CASES	PERCENTAGE (%)
1	Kurinji (Hill areas)	**0**	**0**
2	Mullai (Forest)	**0**	**0**
3	Marutham (Fertile land)	**7**	**17.5**
4	Neithal (Costal area)	**33**	**82.5**
5	Palai (Desert)	**0**	**0**

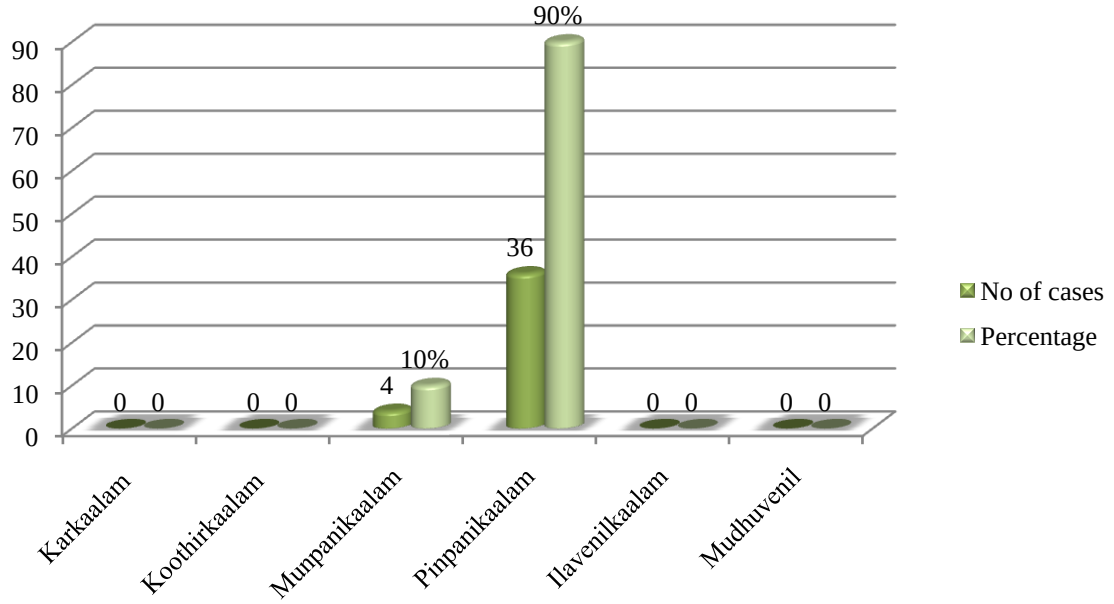


Inference: Out of 40 cases, 33 cases (82.5%) belonged to the **Neithal** (costal area& its surroundings) and 7 cases (17.5%) belonged to the **Marutham** (Fertile land and its surroundings).

DISTRIBUTION OF CASES BY PARUVAKAALAM

TABLE NO: 16

S.NO	PARUVAKAALAM	NO OF CASES	PERCENTAGE (%)
1	Kar (Aug 16-Oct 15)	0	0
2	Koothir (Oct 16-Dec 15)	0	0
3	Munpani (Dec 16-Feb15)	4	10
4	Pinpani (Feb 16-Apr 15)	36	90
5	Ilavenil (Apr 16-Jun 15)	0	0
6	Mudhuvenil (Jun16-Aug 15)	0	0

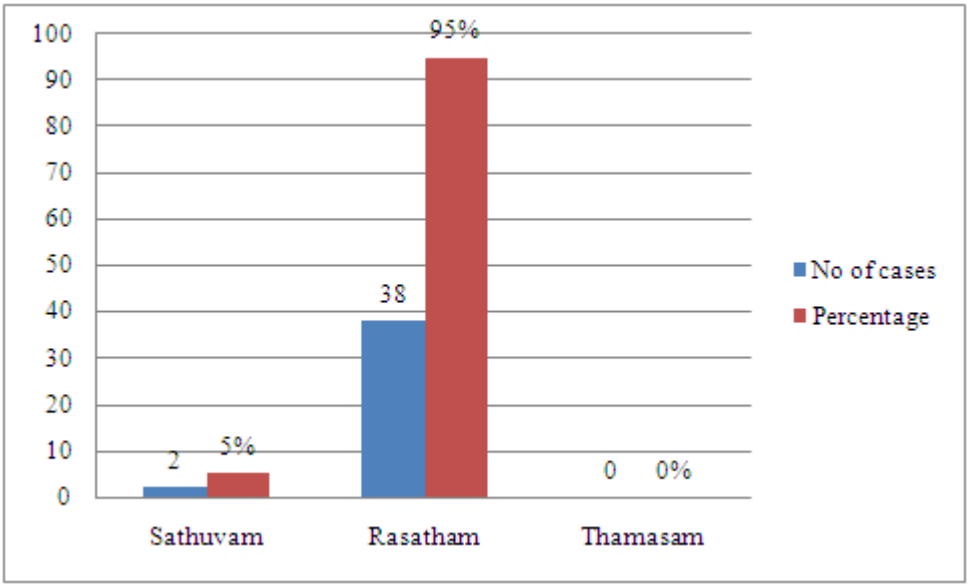


Observation: Among the 40 cases, in 4 cases (10%) the incidence of the disease seems to be in **Munpanikalam.** In 36 cases (90%) the incidence of the disease seems to be in **Pinpanikalam**.

GUNAM DISTRIOBUTION

TABLE NO: 17

S.NO	TYPES OF GUNAM	NO OF CASES	PERCENTAGE %
1.	Sathuvam	2	5
2.	Rasatham	38	95
3.	Thamasam	0	0

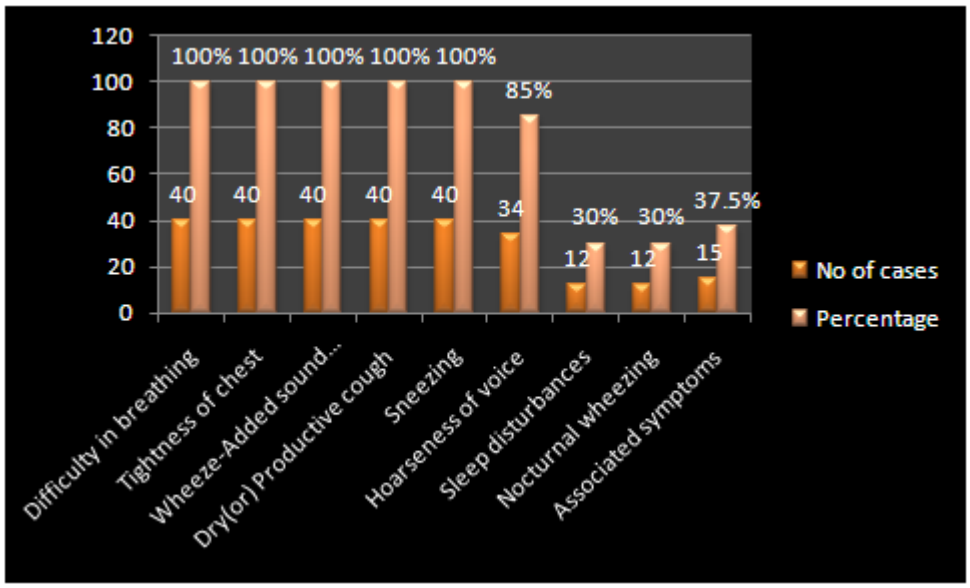


Inference: Out of cases, 2cases (5%) were found to posses **Sathuva gunam** and 38 cases (95%) were found to posses **Rasatha gunam**.

CLINICAL FEATURES

TABLE NO: 18

S.NO	CLINICAL FEATURES	NO OF CASES	PERCENTAGE (%)
1	Difficulty in breathing	40	100
2	Tightness of chest	40	100
3	Wheeze-Added sound (Rhonchi)	40	100
4	Dry(or) Productive cough	40	100
5	Sneezing	40	100
6	Hoarseness of voice	34	85
7	Sleep disturbances	12	30
8	Nocturnal wheezing	12	30
9	Associated symptoms	15	37.5



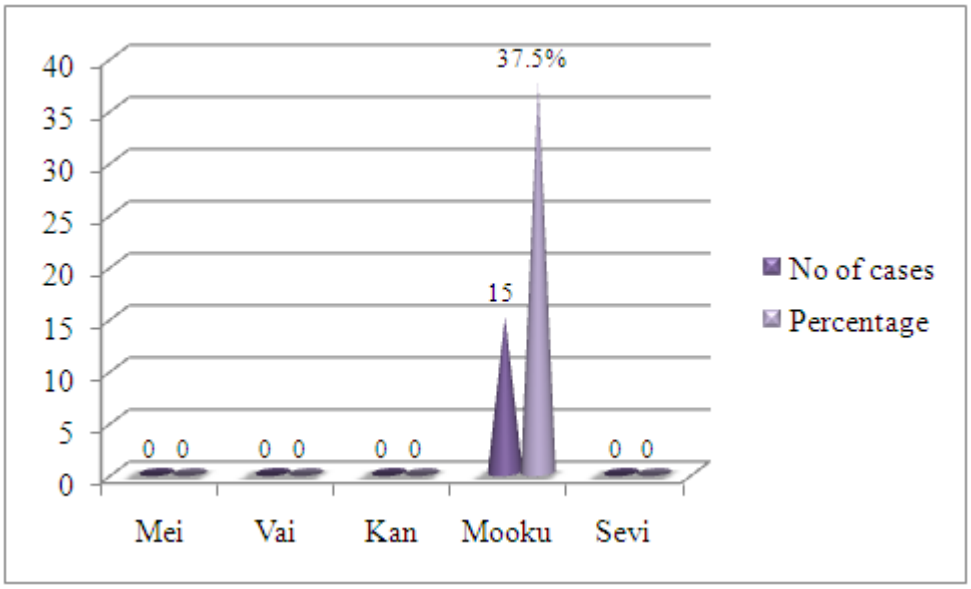
Inference:

- Among 40 cases, in all the 40 cases (100%) had **Difficulty in breathing, tightness of chest, wheeze-added sound (Rhonchi), Dry (or) Productive cough and sneezing**.
- 34 cases (85%) had **hoarseness of voice.**
- 12 cases (30%) had **sleep disturbances.**
- 12 cases (30%) had **nocturnal wheezing**.
- 15 cases (37.5%) had some other **associated symptoms**.

GNANAENDHIRIYAM (IMPORIGAL)

TABLE NO: 19

S.NO	IMPORIGAL	NO OF CASES	PERCENTAGE (%)
1	Mei	0	0
2	Vai	0	0
3	Kan	0	0
4	Mooku	15	37.5
5	Sevi	0	0



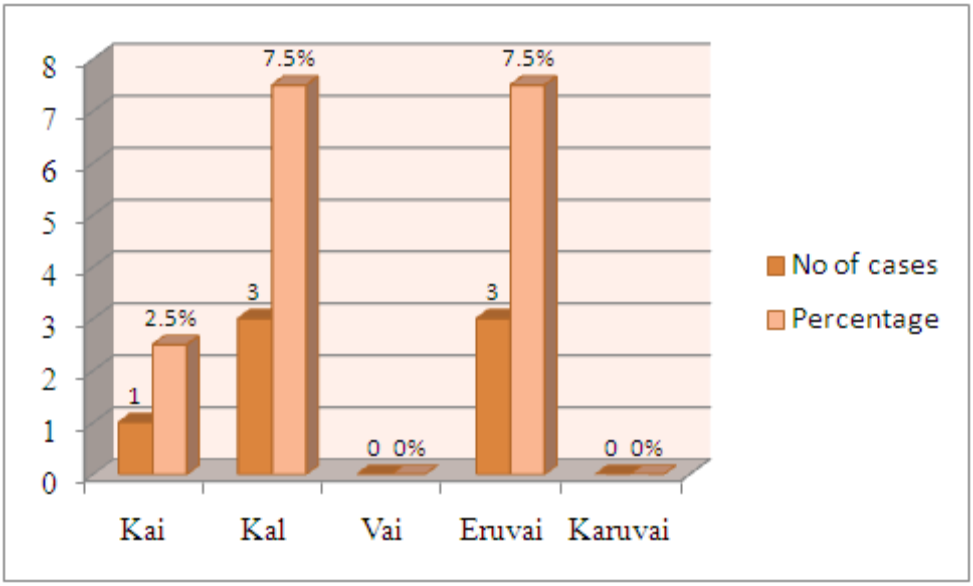
Inference: Out of 40 cases, **Mooku** was affected in 15 cases (37.5%).

.

KANMENDHIRIYAM

TABLE.NO: 20

S.NO	KANMENDHIRIYUM	NO OF CASES	PERCENTAGE (%)
1	Kai	1	2.5
2	Kal	3	7.5
3	Vai	0	0
4	Eruvai	3	7.5
5	Karuvai	0	0

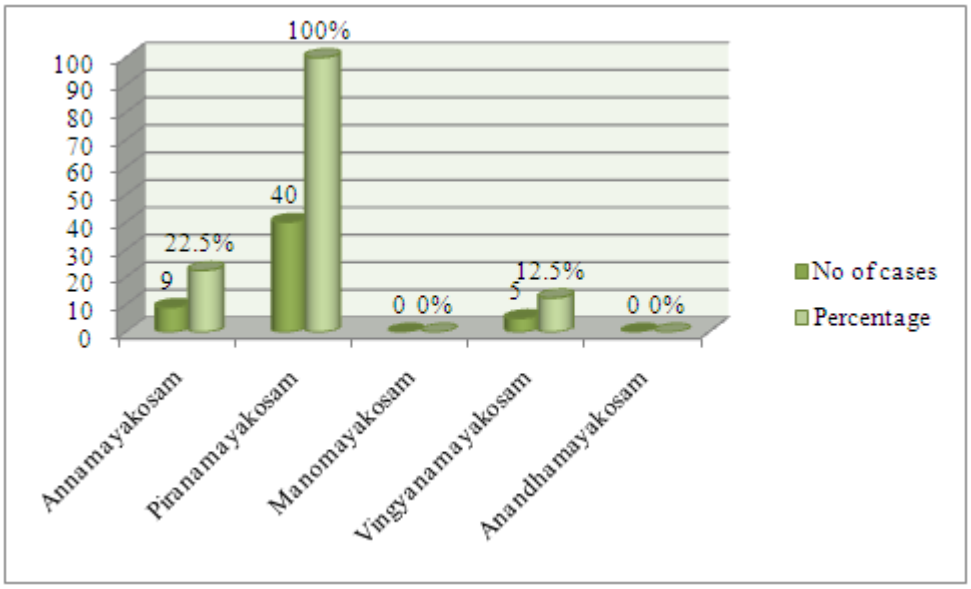


Inference: Out of 40 cases, **Kai** was affected in 1 case (2.5%), **Kal** was affected in 3 cases (7.5%) and **Eruvai** was affected in 3 cases (7.5%).

KOSAM

TABLE NO: 21

S.NO	KOSAM	NO OF THE CASES	PERCENTAGES (%)
1	Annamayakosam	**9**	**22.5**
2	Piranamayakosam	**40**	**100**
3	Manomayakosam	**0**	**0**
4	Vingyanamayakosam	**5**	**12.5**
5	Anandhamayakosam	**0**	**0**



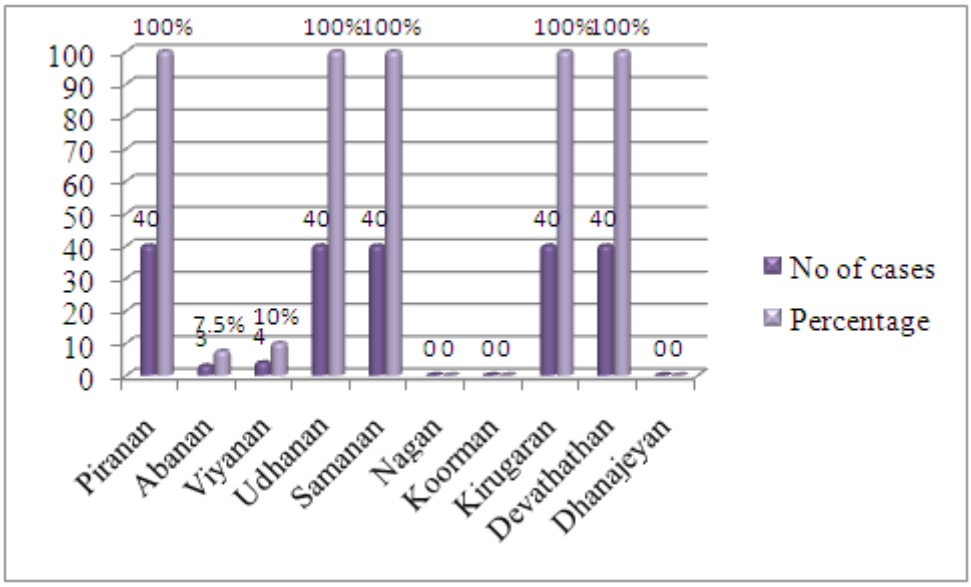
Inference: Among 40 cases, **Pranamayakosam** was affected in all 40 cases (100%), **Annamayakosam** was affected in 9 cases (22.5%) and **Vingyanamayakosam** was affected in 5cases (12.5%). In Swasa kasam Pranamayakosam was mainly affected.

22. MUKKUTRAM A. VATHAM B. PITHAM C. KABAM

22A. VATHAM

TABLE NO: 22A

S.NO	TYPES OF VATHAM	NO OF CASES	PERCENTAGE (%)
1.	Piranan	40	100
2.	Abanan	3	7.5
3.	Viyanan	4	10
4.	Udhanan	40	100
5.	Samanan	40	100
6.	Nagan	0	0
7.	Koorman	0	0
8.	Kirugaran	40	100
9.	Devathathan	40	100
10.	Dhanajeyan	0	0

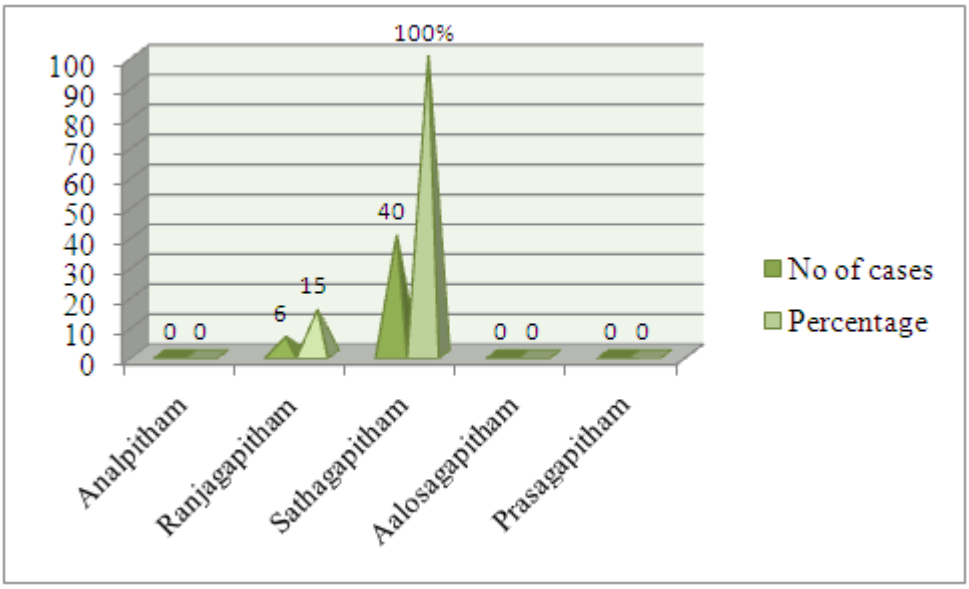


Inference: Among 40 cases, **Pranan, Udhanan, Samanan, Kirugaran and Devathathan** were affected in all cases (100%), **Viyanan** was affected in 4 cases (10%) and **Abanan** was affected in 3 cases (7.5%).

22 B. PITHAM

TABLE NO: 22B

S.NO	TYPES OF PITHAM	NO OF CASES	PERCENTAGE (%)
1.	Analpitham	0	0
2.	Ranjagapitham	6	15
3.	Sathagapitham	40	100
4.	Aalosagapitham	0	0
5.	Prasagapitham	0	0

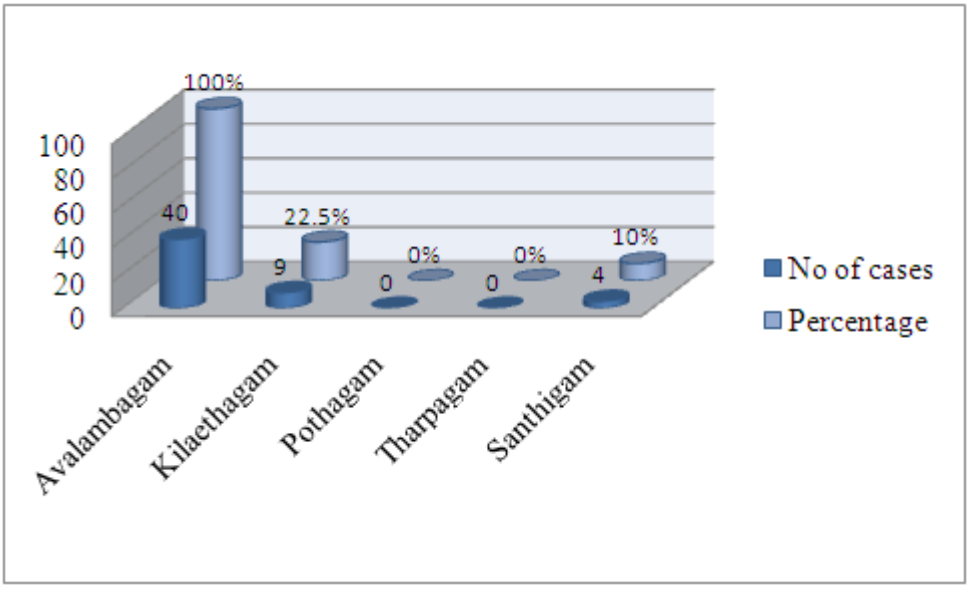


Inference: Among 40 cases, **Sathagapitham** was affected in all the 40 cases (100%) and **Ranjagapitham** was affected in 6cases (15%).

22 C. KABAM

TABLE NO: 22C

S.NO	TYPES OF KABAM	NO OF CASES	PERCENTAGE (%)
1.	Avalambagam	40	100
2.	Kilaethagam	9	22.5
3.	Pothagam	0	0
4.	Tharpagam	0	0
5.	Santhigam	4	10

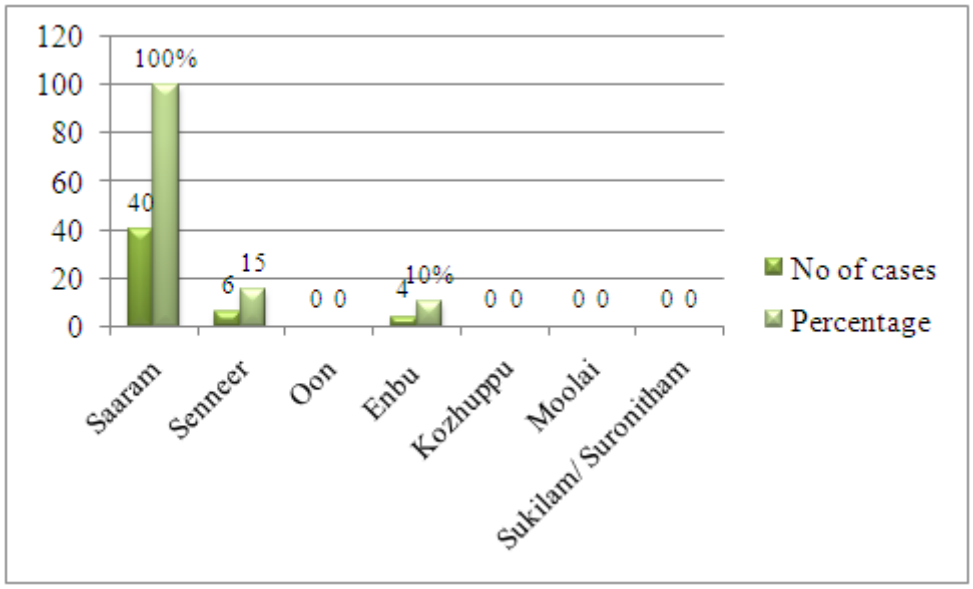


Inference: Among 40 cases, **Avalambagam** was affected in all the 40 (100%) cases, **Kilethagam** was affected in the 9 cases (22.5%) and **Sandhigam** was affected in the 4 cases (10%). In Swasa kasam Avalambagam was mainly affected.

23. EZHU UDAL KATTUKAL

TABLE NO: 23

S.NO	EZHU UDAL KATTUGAL	NO OF CASES	PERCENTAGE (%)
1.	Saaram	40	100
2.	Senneer	6	15
3.	Oon	0	0
4.	Enbu	4	10
5.	Kozhuppu	0	0
6.	Moolai	0	0
7.	Sukilam/ Suronitham	0	0

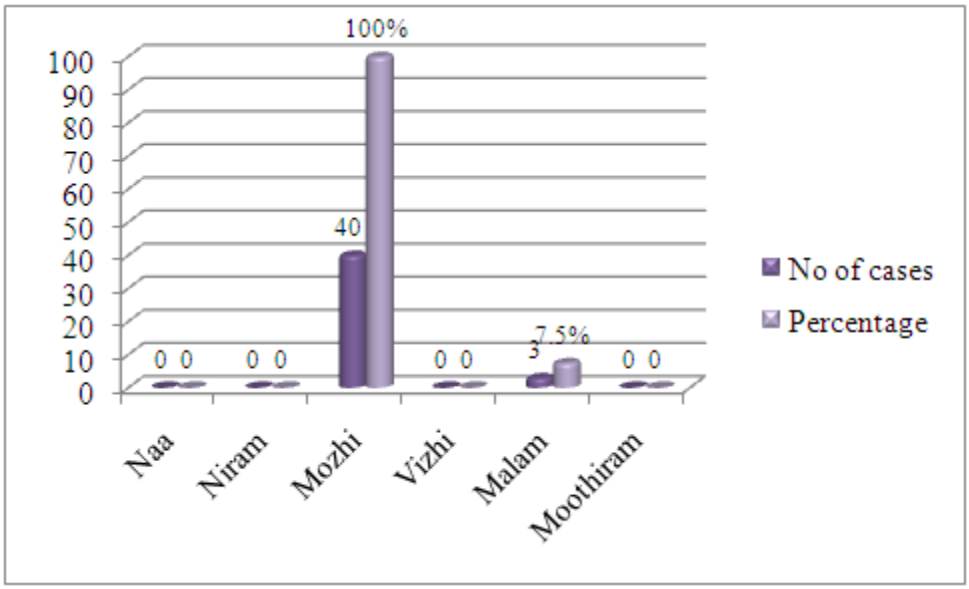


Inference: Among 40 cases, **Saaram** was affected all the 40cases (100%), **Senneer** was affected in 6 cases (15%) and **Enbu** was affected in 4 Cases (10%).

24. ENN VAGAI THERVUGAL

TABLE NO: 24A

S.NO	EN VAGAI THERVUGAL	NO OF CASES	PERCENTAGE (%)
1.	Naa	0	0
2.	Niram	0	0
3.	Mozhi	40	100
4.	Vizhi	0	0
6.	Malam	3	7.5
7.	Moothiram	0	0

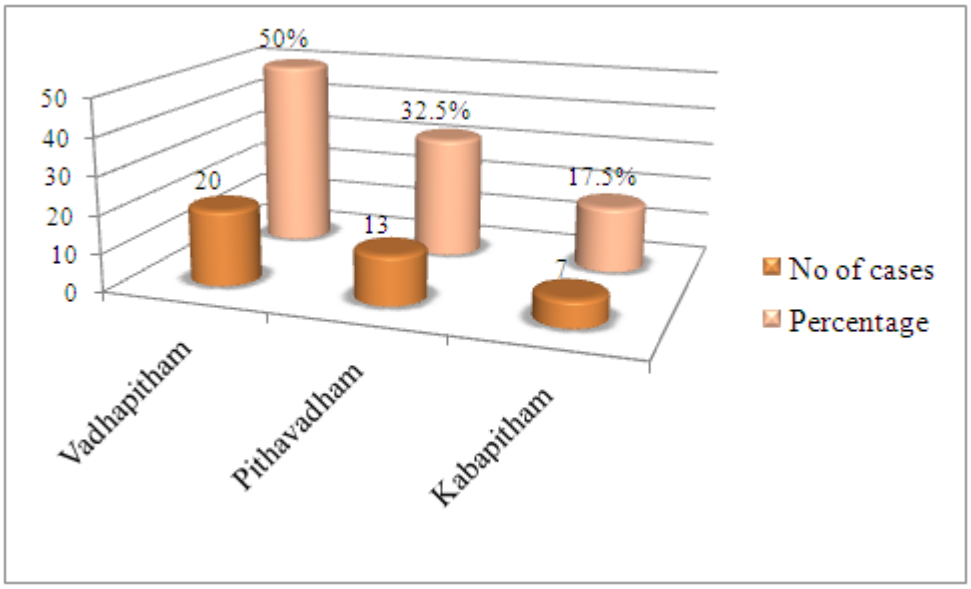


Inference: Among 40 cases, **Mozhi** was affected in all the 40 cases (100%), **Malam** was affected in the 3 cases (7.5%). In Swasa kasam Mozhi was affected in all the patients.

ENN VAGAI THERVUGAL

TABLE NO: 24B

S.NO	EN VAGAI THERVUGAL	NO OF CASES	PERCENTAGE (%)
	Naadi		
1.	Vadhapitham	20	50
2.	Pithavadham	13	32.5
3.	Kabapitham	7	17.5

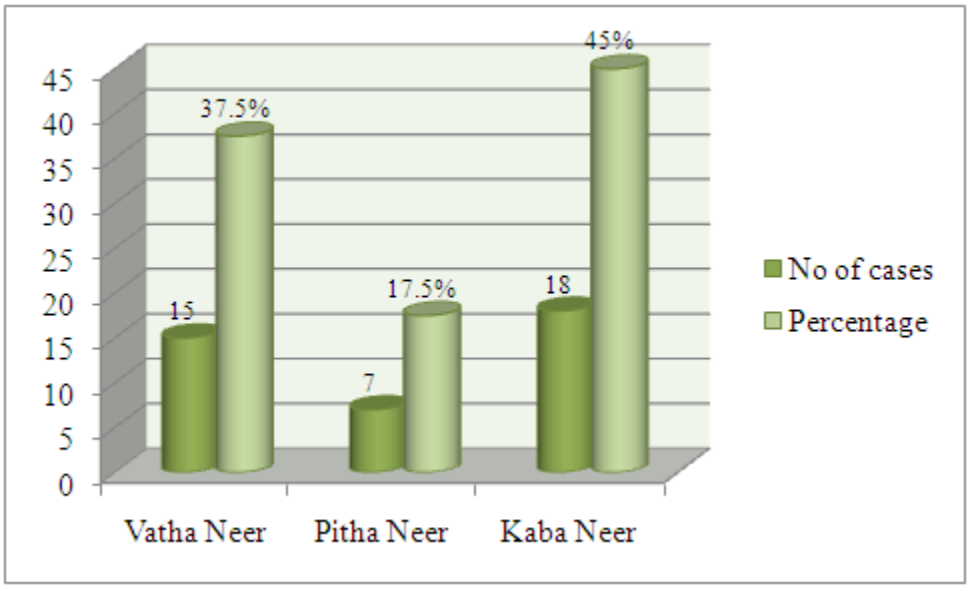


Inference: In Naadi **Vathapitha naadi** presened in the 20 cases (50%), **Pitha vatham** showed in the 13 cases (32.5%) and **Kabapitham** presened in the 7 cases (17.5%). In Naadi **Vathapitha naadi** presented higher frequency than the others.

25. NEIKURI

TABLE NO: 25

S.NO	NEIKURI	NO OF CASES	PERCENTAGE (%)
1	Vatha Neer	15	37.5
2	Pitha Neer	7	17.5
3	Kaba Neer	18	45



Inference: Among 40 cases, 15 cases (37.5%) had **Vatha neer**, 7 cases (17.5%) had **Pitha neer** and 18 cases (45%) had Kaba neer. In majority of cases **kaba neer** was present.

26. LABORATORY INVESTIGATIONS

PEAK EXPIRATORY FLOW RATE

S.No	O.P / I.P NO	Age/ Sex	PEFR(Lit/min) Before Treatment	PEFR (Lit/min) After Treatment
1	G92139	50/F	130	380
2	H17667	19/F	170	320
3	H7442	25/M	180	470
4	H12068	33/M	200	350
5	G32326	29/F	170	380
6	H26474	20/F	180	390
7	G85930	33/F	190	420
8	H17992	35/F	120	320
9	H23387	33/F	160	390
10	H26831	49/M	230	490
11	H19563	26/F	130	280
12	G73166	34/F	120	410
13	H24367	41/F	160	260
14	G89922	46/F	180	410
15	H26132	36/F	140	390
16	H2011	21/M	230	500
17	H14663	36/F	180	320
18	H26997	25/F	180	310
19	H12761	33/M	200	500
20	G86365	50/F	180	240
21	G71874	23/M	230	400
22	H27778	30/F	190	390
23	H25912	26/F	120	220
24	H11701	29/F	180	320
25	H13931	28/F	140	270
26	H11445	39/F	180	410
27	G73056	37/M	220	490
28	H26927	22/F	130	350
29	H29920	46/F	180	370
30	H15114	30/M	180	470
31	H28456	19/F	150	340
32	H574	19/M	220	490
33	F74960	28/M	160	410
34	H18109	57/M	210	340
35	H25074	32/M	190	440
36	H33269	20/M	180	480
37	H25538	35/F	130	290
38	H1185	35/M	200	430
39	E98016	23/M	180	420
40	H34343	21/M	180	380

EOSINOPHILS COUNT BEFORE AND AFTER TREATMENT

S.No	O.P / I.P No	Age/ Sex	Eosinophil% Before Treatment	Eosinophil% After Treatment
1	G92139	50/F	4	3
2	H17667	19/F	6	5
3	H7442	25/M	8	6
4	H12068	33/M	6	6
5	G32326	29/F	9	6
6	H26474	20/F	6	4
7	G85930	33/F	5	4
8	H17992	35/F	6	2
9	H23387	33/F	7	5
10	H26831	49/M	8	2
11	H19563	26/F	5	4
12	G73166	34/F	6	4
13	H24367	41/F	4	5
14	G89922	46/F	4	3
15	H26132	36/F	6	5
16	H2011	21/M	7	5
17	H14663	36/F	5	4
18	H26997	25/F	7	5
19	H12761	33/M	9	5
20	G86365	50/F	18	16
21	G71874	23/M	8	6
22	H27778	30/F	5	5
23	H25912	26/F	14	7
24	H11701	29/F	5	5
25	H13931	28/F	7	3
26	H11445	39/F	7	7
27	G73056	37/M	6	3
28	H26927	22/F	6	5
29	H29920	46/F	8	4
30	H15114	30/M	7	4
31	H28456	19/F	5	3
32	H574	19/M	10	5
33	F74960	28/M	3	3
34	H18109	57/M	7	8
35	H25074	32/M	7	6
36	H33269	20/M	6	6
37	H25538	35/F	7	5
38	H1185	35/M	8	4
39	E98016	23/M	6	4
40	H34343	21/M	6	6

ESR RATE BEFORE AND AFTER TREATMENT

S.No	O.P / I.P No	Age/ Sex	ESR (mm/hr) Before treatment		ESR (mm/hr) After treatment	
1	G92139	50/F	20	86	8	20
2	H17667	19/F	16	32	2	4
3	H7442	25/M	4	8	4	8
4	H12068	33/M	2	4	4	8
5	G32326	29/F	8	20	6	12
6	H26474	20/F	8	16	8	16
7	G85930	33/F	8	16	8	16
8	H17992	35/F	2	6	2	4
9	H23387	33/F	4	12	2	4
10	H26831	49/M	12	26	6	12
11	H19563	26/F	12	14	6	14
12	G73166	34/F	10	26	8	16
13	H24367	41/F	16	32	14	20
14	G89922	46/F	12	40	8	16
15	H26132	36/F	20	44	12	18
16	H2011	21/M	12	16	4	8
17	H14663	36/F	32	62	4	10
18	H26997	25/F	4	12	2	10
19	H12761	33/M	6	12	4	8
20	G86365	50/F	30	40	24	36
21	G71874	23/M	20	44	14	20
22	H27778	30/F	16	32	4	10
23	H25912	26/F	14	30	12	24
24	H11701	29/F	14	18	8	16
25	H13931	28/F	30	62	14	20
26	H11445	39/F	10	14	4	8
27	G73056	37/M	4	10	2	8
28	H26927	22/F	20	42	12	20
29	H29920	46/F	18	36	12	14
30	H15114	30/M	6	12	4	8
31	H28456	19/F	18	26	4	8
32	H574	19/M	5	10	4	12
33	F74960	28/M	6	12	4	8
34	H18109	57/M	2	6	4	8
35	H25074	32/M	4	8	2	6
36	H33269	20/M	2	4	2	4
37	H25538	35/F	4	10	2	4
38	H1185	35/M	4	12	2	4
39	E98016	23/M	2	4	2	4
40	H34343	21/M	20	36	14	16

ABSOLUTE EOSINOPHIL COUNT BEFORE AND AFTER TREATMENT

S.No	O.P / I.P NO	Age/ Sex	AEC (cells/cumm) Before treatment	AEC (cells/cumm) After Treatment
1	G92139	50/F	211	188
2	H17667	19/F	188	180
3	H7442	25/M	355	320
4	H12068	33/M	290	311
5	G32326	29/F	320	188
6	H26474	20/F	299	170
7	G85930	33/F	270	266
8	H17992	35/F	270	180
9	H23387	33/F	280	169
10	H26831	49/M	340	270
11	H19563	26/F	140	122
12	G73166	34/F	210	111
13	H24367	41/F	144	160
14	G89922	46/F	300	240
15	H26132	36/F	240	122
16	H2011	21/M	210	199
17	H14663	36/F	244	188
18	H26997	25/F	240	166
19	H12761	33/M	260	222
20	G86365	50/F	720	640
21	G71874	23/M	390	188
22	H27778	30/F	122	222
23	H25912	26/F	480	310
24	H11701	29/F	240	210
25	H13931	28/F	280	280
26	H11445	39/F	280	260
27	G73056	37/M	190	180
28	H26927	22/F	240	170
29	H29920	46/F	388	290
30	H15114	30/M	240	160
31	H28456	19/F	280	120
32	H574	19/M	266	240
33	F74960	28/M	340	280
34	H18109	57/M	320	380
35	H25074	32/M	240	222
36	H33269	20/M	210	160
37	H25538	35/F	360	344
38	H1185	35/M	320	166
39	E98016	23/M	330	232
40	H34343	21/M	260	166

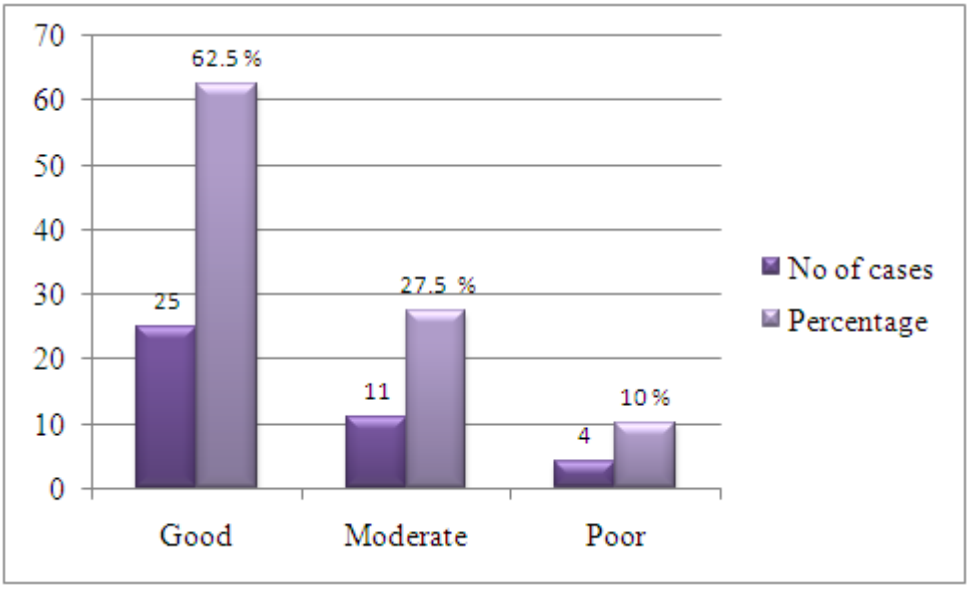
SERUM IgE LEVEL BEFORE AND AFTER TREATMENT

S.No	O.P / I.P NO	Age/ Sex	Serum IgE (IU/ml) Before treatment	Serum IgE (IU/ml) After Treatment
1	G92139	50/F	591	260
2	H17667	19/F	978	550
3	H7442	25/M	2695	111
4	H12068	33/M	2500	1400
5	G32326	29/F	142	120
6	H26474	20/F	1381	710
7	G85930	33/F	518	511
8	H17992	35/F	1499	800
9	H23387	33/F	2900	2316
10	H26831	49/M	3000	3000
11	H19563	26/F	1141	794
12	G73166	34/F	535	478
13	H24367	41/F	996	890
14	G89922	46/F	54	50
15	H26132	36/F	647	430
16	H2011	21/M	928	610
17	H14663	36/F	1074	769
18	H26997	25/F	134	120
19	H12761	33/M	790	540
20	G86365	50/F	1562	778
21	G71874	23/M	278	250
22	H27778	30/F	162	110
23	H25912	26/F	3000	3000
24	H11701	29/F	931	571
25	H13931	28/F	695	640
26	H11445	39/F	176	130
27	G73056	37/M	494	350
28	H26927	22/F	480	329
29	H29920	46/F	120	110
30	H15114	30/M	526	515
31	H28456	19/F	1318	720
32	H574	19/M	995	679
33	F74960	28/M	360	420
34	H18109	57/M	617	530
35	H25074	32/M	819	436
36	H33269	20/M	543	310
37	H25538	35/F	129	234
38	H1185	35/M	184	311
39	E98016	23/M	2500	1240
40	H34343	21/M	1833	510

PRIMARY OUTCOME
TABLE NO: 27

OUTCOME BY PEFR

S.NO	RESULT	NO OF CASES	PERCENTAGE (%)
1.	Good	25	62.5
2.	Moderate	11	27.5
3.	Poor	4	10



Inference: After treatment, Out of 40 cases, 25 cases (62.5%) showed good improvement by PEFR and completely relieved from wheezing, 11 cases (27.5%) showed moderately improvement, 4 cases (10%) showed mild improvement.

Good – PEFR value for Men above 400; for women above 250

Moderate – PEFR value for men between 400- 450; for women between 250-300

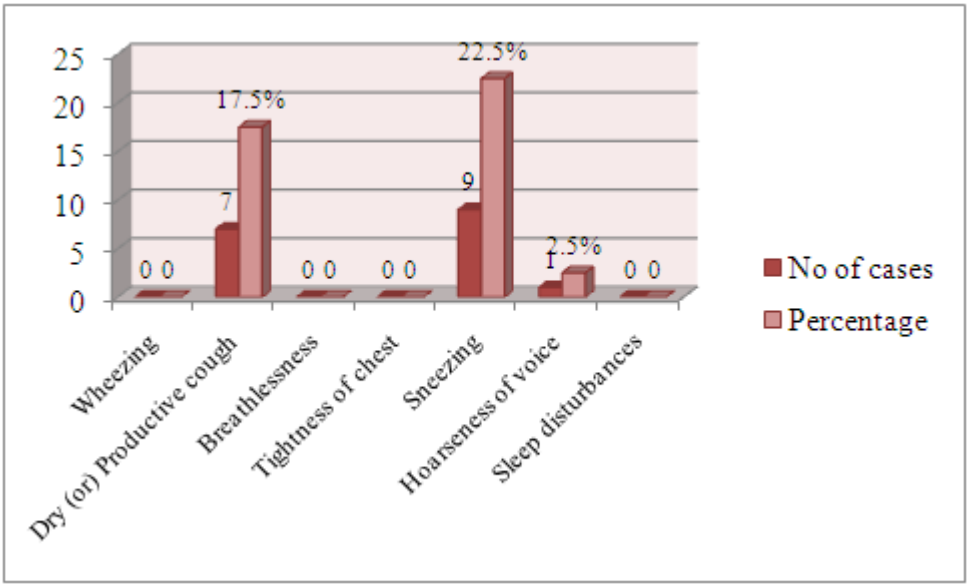
Poor – PEFR value for men below 400; for women below 250

SECONDARY OUTCOME

CLINICAL FEATURES (AS PER SUBJECTIVE PARAMETER)

TABLE NO: 28

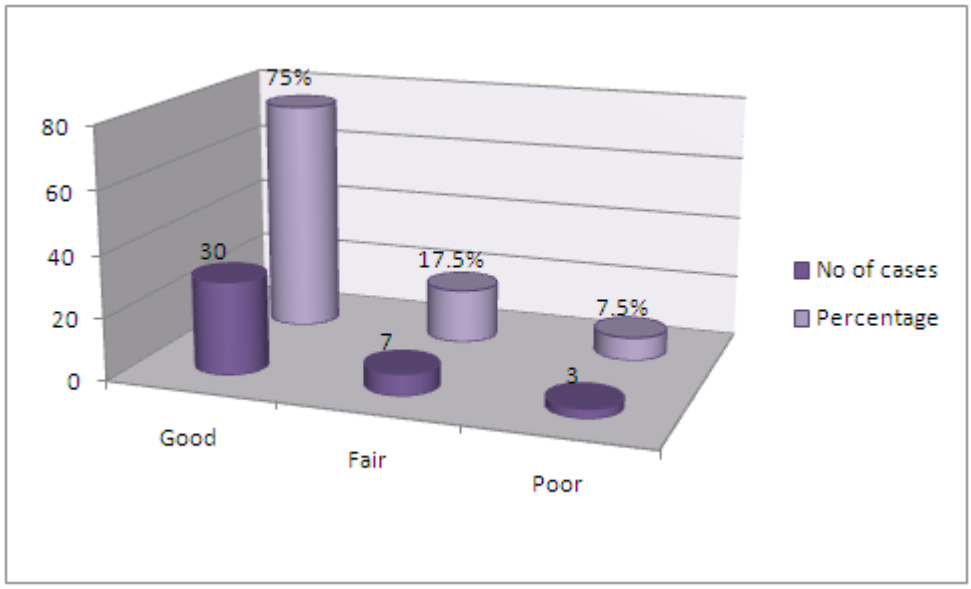
SNO	CLINICAL FEATURES	NO OF CASES	PERCENTAGE (%)
1.	Wheezing	0	0
2.	Dry (or) Productive cough	7	17.5
3.	Breathlessness	0	0
4.	Tightness of chest	0	0
5.	Sneezing	9	22.5
6.	Hoarseness of voice	1	2.5
7.	Sleep disturbances	0	0



Inference: After treatment, Out of 40 cases, 82.5% cases relieved from cough, 77.5% cases were relieved from sneezing, and 97.5% cases were relieved from Hoarseness of voice.Other symptoms were gradually reduced well.

GRADATION OF RESULTS

SNO	RESULTS	AFTER TREATMENT	
		NO OF CASES	PERCENTAGE (%)
1.	Good	30	75
2.	Fair	7	17.5
3.	Poor	3	7.5



Inference: Out of 40 cases, Good results were found in 75% of cases. Fair results were found in 17.5% of cases. Poor results were found in 7.5% of cases.

STATISTICAL ANALYSIS

All collected data were entered into MS Excel software using different columns as variables and rows as patients. SPSS software was used to perform statistical analysis. Basic descriptive statistics include frequency distributions and cross-tabulations were performed. The quantity variables were expressed as Mean ± Standard Deviation and qualitative data as percentage. A probability value of <0.05 was considered to indicate as statistical significance. Paired 't' test was performed for determining the significance between before and after treatment.

Paired 't' test for Peak Expiratory Flow Rate

Group	Mean	Std	t value	P Value
Before	174.50	31.29	-21.10	P<0.0001
After	381	74.96		

PEFR before treatment is 174.50 and after treatment is 381.00 which is statistically significant (p<0.0001).

Paired 't' test for ESR ½ Hr

Group	Mean	Std	t value	P Value
Before	11.42	8.23	5.2869	P<0.0001
After	6.55	4.91		

ESR 1/2 hr before treatment is 11.42 and after treatment is 6.55 which is statistically significant (p<0.0001).

Paired 't' test for ESR 1 Hr

Group	Mean	Std	t value	P Value
Before	23.80	18.36	4.89	P<0.0001
After	12.05	6.86		

ESR 1 hr before treatment is 23.80 and after treatment is 12.05 which is statistically significant (p<0.0001).

Paired ‘t’ test for Esoinophil count

Group	Mean	Std	t value	P Value
Before	6.85	2.62	3.86	P<0.0001
After	4.85	2.28		

Eosinophil count before treatment is 6.85 and after treatment is 4.85 which is statistically significant ($p<0.0001$).

LAB INVESTIGATION PARAMETERS

LAB INVESTIGATIONS/BEFORE TREATMENT																					
S. NO	OP/IP NO	Name	Age/ Sex	Hb	TC	DC			T.RBC	ESR		Sugar			Urea	Creatinine	Cholesterol				
						P	L	E		1/2hr	1hr	F	PP	R			Total	HDL	LDL	VLDL	TGL
1	G92139	Mrs.Chandra	50/F	10.7	10100	68	28	4	4	20	86	111	127	-	16	0.8	150	48	89	28	142
2	H17667	Ms.Keerthika	19/F	11.7	10000	62	32	6	5.1	16	32	83	101	-	17	0.7	145	48	80	14	68
3	H7442	Mr.Kumaravel	25/M	14.3	8200	59	33	8	5.2	4	8	96	82	-	14	0.8	120	41	68	11	56
4	H12068	Mr.Sakthimurugan	33/M	15.7	9000	58	36	6	5.7	2	4	85	82	-	12	1.1	189	56	117	20	101
5	G32326	Mrs.Kadharma	29/F	12	8400	45	46	9	4.7	8	20	83	90	-	12	0.8	169	58	94	23	116
6	H26474	Ms.Radhika	20/F	10.2	11900	57	37	6	4.2	8	16	87	90	-	16	0.8	164	51	90	14	72
7	G85930	Mr.Palanivel	33/F	13.3	7000	54	41	5	5.5	8	16	87	104	-	19	1.1	200	52	112	27	134
8	H17992	Mrs.Radha	35/F	14.5	9700	55	39	6	14.5	2	6	108	138	-	19	0.9	191	48	106	25	124
9	H23387	Mrs.Sheelarani	33/F	12.4	7200	51	42	7	4.3	4	12	88	81	-	13	0.8	192	52	107	21	104
10	H26831	Mr.Boopalan	49/M	15.6	9900	68	24	8	5.3	12	26	100	144	-	23	1.1	152	56	81	17	89
11	H19563	Mrs.Dilshat	26/F	12.5	5600	50	45	5	4.4	12	14	106	131	-	21	0.9	116	45	59	18	91
12	G73166	Mrs.Geethalakshmi	34/F	10.3	7000	54	40	6	4	10	26	108	124	-	18	0.8	180	51	103	18	90
13	H24367	Mrs.Jayalakshmi	41/F	12.1	6100	56	40	4	4.2	16	32	104	91	-	16	1	219	69	121	17	84
14	G89922	Mrs.Sumathi	46/F	13.3	5500	58	38	4	5	12	40	97	103	-	14	0.9	172	59	97	32	159
15	H26132	Mrs.Mobina	36/F	13.1	8200	55	39	6	4.6	20	44	95	97	-	28	0.8	187	70	104	13	64
16	H2011	Mr.Vignesh	21/M	14.5	5800	46	47	7	5.3	12	16	86	81	-	11	0.9	143	51	78	18	88
17	H14663	Mrs.Jeyanthi	36/F	12.5	8200	55	40	5	4.2	32	62	95	80	-	20	0.7	168	68	82	28	138
18	H26997	Ms.Pugalarasi	25/F	11.7	6400	52	41	7	4.3	4	12	106	115	-	11	0.9	144	68	72	11	57
19	H12761	Mr.Shunmugam	33/M	14.3	5800	55	36	9	5	6	12	92	82	-	17	1	196	54	95	17	141
20	G86365	Mrs.Jayalakshmi	50/F	11.1	4800	48	32	18	3.3	30	40	84	94	-	32	0.4	215	63	127	38	159

LAB INVESTIGATIONS/BEFORE TREATMENT																				
S. NO	OP/IP NO	Name	Age/ sex	Hb	TC	DC			T.RBC	ESR		Sugar			Urea	Creatinine	Cholesterol				
						P	L	E		½ hr	1hr	F	PP	R			Total	HDL	LDL	VLDL	TGL
21	G71874	Mr.Balasubramaniyan	23/M	15.4	10500	70	22	8	5	20	44	102	90	-	13	0.1	178	54	97	20	102
22	H27778	Mrs.Marimuthu	30/F	11.9	9400	60	35	5	4.9	16	32	100	120	-	27	0.9	220	63	110	29	146
23	H25912	Ms.Senbagam	26/F	12.7	9000	67	29	14	4.4	14	30	91	105	-	22	0.8	180	60	101	7	36
24	H11701	Mrs.Vidya	29/F	13.6	8800	67	28	5	4.8	14	18	109	90	-	17	0.9	186	53	106	20	160
25	H13931	Mrs.Deepalakshmi	28/F	12.7	13800	58	35	7	4.7	30	62	106	133	-	16	0.9	223	63	130	27	135
26	H11445	Mrs.Leony	39/F	11.7	9000	50	43	7	4.5	10	14	103	140	-	22	0.7	160	72	82	13	65
27	G73056	Mr.Gunasekaran	37/M	14.5	6600	63	31	6	5.3	4	10	110	126	-	16	1.1	220	57	126	37	153
28	H26927	Ms.Monikarani	22/F	12.2	9600	61	33	6	4.4	20	42	90	131	-	14	0.7	184	55	106	26	129
29	H29920	Mrs.Navaneetham	46/F	12.7	11800	61	31	8	5.1	18	36	87	131	-	12	0.7	183	60	120	18	91
30	H15114	Mr.Ramesh	30/M	12.9	7300	67	26	7	4.8	6	12	97	110	-	14	0.8	167	80	85	10	79
31	H28456	Ms.Gopika	19/F	12.3	7200	63	32	5	4.5	18	26	93	103	-	13	0.7	183	79	93	13	70
32	H574	Mr.Nagaraj	19/M	15.2	9200	62	28	10	5.3	5	10	101	116	-	13	1.0	136	44	76	10	48
33	F74960	Mr.Seethapathy	28/M	15.0	10830	61	29	3	5.04	6	12	78	100	-	22	0.9	25	32	80	13	123
34	H18109	Mr.Thiyagarajan	57/M	16.4	8100	73	20	7	5.8	2	6	96	117	-	22	1.0	154	51	93	12	62
35	H25074	Mr.Navaraj	32/M	17.3	6200	59	34	7	6.1	4	8	79	78	-	25	1.0	199	80	104	21	105
36	H33269	Mr.Adalarasu	20/M	15.2	7200	57	37	6	5.2	2	4	86	78	-	11	1.0	175	59	19	19	93
37	H25538	Ms.Leena	35/F	14.5	9200	55	38	7	5.6	4	10	90	94	-	13	0.8	147	57	79	12	62
38	H1185	Mr.Suresh	35/M	13.6	8700	63	29	8	5.9	4	12	93	151	-	23	0.9	173	50	95	23	0.9
39	E98016	Mr.Vengai Diliban	23/M	5.7	6900	51	43	6	5.7	2	4	84	98	-	22	1.0	171	55	93	15	76
40	H34343	Mrs.Yogalakshmi	21/F	13.1	6600	48	44	6	4.4	20	36	88	90	-	24	0.7	145	64	90	12	59

LAB INVESTIGATIONS/AFTER TREATMENT																					
S. No	OP/IP NO	Name	Age/ Sex	Hb	TC	DC			T.RBC	ESR		Sugar			Urea	Creatinine	Cholesterol				
						P	L	E		½ hr	1hr	F	PP	R			Total	HDL	LDL	VLDL	TGL
1	G92139	Mrs.Chandra	50/F	10.8	8900	60	38	2	4.1	8	20	92	84	-	17	0.9	159	51	63	32	100
2	H17667	Ms.Keerthika	19/F	11.9	8200	65	30	3	5.1	2	4	88	95	-	19	0.7	135	48	53	12	59
3	H7442	Mr.Kumaravel	25/M	15.0	8200	59	33	5	5.3	4	8	85	71	-	21	0.9	113	40	61	11	55
4	H12068	Mr.Sakthimurugan	33/M	15.7	8800	57	37	6	5.7	4	8	82	133	-	22	1.1	166	41	97	32	160
5	G32326	Mrs.Kadharma	29/F	12.4	6800	40	52	6	4.5	6	12	85	100	-	22	0.7	144	52	76	17	17
6	H26474	Ms.Radhika	20/F	10.6	9100	62	34	6	4.3	8	16	83	96	-	11	0.8	116	36	60	14	73
7	G85930	Mr.Palanivel	33/F	14.6	7300	54	40	4	5.3	8	16	81	83	-	29	0.1	188	53	100	26	131
8	H17992	Mrs.Radha	35/F	14.5	9600	55	39	4	5.0	2	4	103	104	-	19	0.9	190	49	93	25	132
9	H23387	Mrs.Sheelarani	33/F	12.5	7600	60	35	2	4.3	2	4	81	94	-	22	0.7	199	57	118	28	142
10	H26831	Mr.Boopalan	49/M	16.1	6300	53	34	5	5.7	6	12	107	92	-	26	0.9	147	45	86	13	63
11	H19563	Mrs.Dilshat	26/F	13.1	5200	50	46	2	4.7	6	14	95	106	-	23	0.7	116	46	53	18	91
12	G73166	Mrs.Geethalakshmi	34/F	10.5	5900	50	46	4	4.2	8	16	96	133	-	19	0.9	173	42	102	21	80
13	H24367	Mrs.Jayalakshmi	41/F	12.3	5500	55	40	4	4.4	14	20	93	128	-	16	0.6	180	62	110	16	90
14	G89922	Mrs.Sumathi	46/F	13.5	6400	60	37	5	5.1	8	16	82	85	-	25	0.8	189	58	63	22	111
15	H26132	Mrs.Mobina	36/F	13.5	6600	45	50	3	4.7	12	18	107	123	-	21	0.9	173	60	97	10	48
16	H2011	Mr.Vignesh	21/M	15.4	5800	45	50	5	5.6	4	8	85	71	-	10	1.1	127	44	72	24	119
17	H14663	Mrs.Jeyanthi	36/F	12.7	9800	63	33	5	4.2	4	10	79	111	-	19	0.8	163	63	80	38	128
18	H26997	Ms.Pugalarasi	25/F	11.5	8400	68	27	4	4.2	2	10	83	107	-	11	0.7	124	59	62	11	88
19	H12761	Mr.Shunmugam	33/M	15.3	5400	57	38	5	5.3	4	8	57	38	-	20	1.1	170	62	72	24	118
20	G86365	Mrs.Jayalakshmi	50/F	11.3	4900	56	25	5	3.4	24	36	90	92	-	31	0.4	215	61	126	27	137

LAB INVESTIGATIONS/AFTER TREATMENT																					
S. No	OP/IP NO	Name	Age/ Sex	Hb	TC	DC			T.RBC	ESR		Sugar			Urea	Creatinine	Cholesterol				
						P	L	E		½ hr	1hr	F	PP	R			Total	HDL	LDL	VLDL	TGL
21	G71874	Mr.Balasubramaniyan	23/M	15.9	9500	60	30	16	5.4	14	20	91	86	-	13	0.8	181	47	106	18	91
22	H27778	Mrs.Marimuthu	30/F	11.9	8500	51	44	6	4.9	4	10	91	104	-	16	0.8	209	50	90	40	130
23	H25912	Ms.Senbagam	26/F	14.8	8300	67	26	5	4.6	12	24	83	90	-	26	0.8	156	50	87	13	62
24	H11701	Mrs.Vidya	29/F	13.4	8800	68	27	7	4.6	8	16	94	89	-	28	0.9	174	46	100	31	153
25	H13931	Mrs.Deepalakshmi	28/F	12.8	10200	67	30	5	4.8	14	20	86	138	-	15	0.8	220	63	122	22	136
26	H11445	Mrs.Leony	39/F	11.8	8500	53	40	3	4.6	4	8	90	79	-	22	0.8	163	63	87	12	59
27	G73056	Mr.Gunasekaran	37/M	14.7	8900	68	24	7	5.4	2	8	93	104	-	24	1.1	180	58	125	33	142
28	H26927	Ms.Monikarani	22/F	12.0	8600	65	30	3	4.4	12	20	105	117	-	20	0.7	161	42	89	30	150
29	H29920	Mrs.Navaneetham	46/F	12.7	9800	67	29	5	4.9	12	14	83	107	-	11	0.7	170	54	98	17	83
30	H15114	Mr.Ramesh	30/M	13.6	6400	68	28	4	4.8	4	8	90	112	-	15	0.6	192	70	105	27	137
31	H28456	Ms.Gopika	19/F	13.6	6400	68	28	4	4.8	4	8	93	114	-	13	0.6	180	60	104	24	80
32	H574	Mr.Nagaraj	19/M	15.1	8600	53	42	3	5.3	4	12	86	100	-	15	0.9	126	36	36	25	43
33	F74960	Mr.Seethapathy	28/M	15.2	10000	62	32	5	5.05	4	8	83	102	-	22	1.0	127	36	71	20	102
34	H18109	Mr.Thiyagarajan	57/M	16.0	9700	75	17	3	5.6	4	8	105	120	-	19	1.1	150	46	85	23	115
35	H25074	Mr.Navaraj	32/M	17.3	7500	56	38	8	6.0	2	6	95	79	-	21	1.2	181	76	94	14	70
36	H33269	Mr.Adalarasu	20/M	14.3	5500	54	40	6	5.2	2	4	86	89	-	18	1.0	193	44	63	26	130
37	H25538	Ms.Leena	35/F	14.5	9300	62	33	6	5.6	2	4	86	80	-	06	0.8	135	46	77	11	70
38	H1185	Mr.Suresh	35/M	13.6	8900	66	30	5	5.9	2	4	95	134	-	25	1.0	146	40	94	43	113
39	E98016	Mr.Vengai Diliban	23/M	16.2	7400	59	37	4	5.7	2	4	86	103	-	29	1.0	128	53	73	14	71
40	H34343	Mrs.Yogalakshmi	21/F	12.9	5900	43	51	4	4.3	14	16	89	90	-	27	0.7	155	62	82	24	121

LAB INVESTIGATIONS/BEFORE TREATMENT															
SNO	OP NO	Name	Age/ Sex	Bilirubin			SGOT	SGPT	ALKPHOS	Protein			CAL	PHOS	Uric acid
				T	DB	IDB				T	Alb	Glob			
1	G92139	Mrs.Chandra	50/F	0.3	0.2	0.1	11	10	85	7.2	4.0	3.2	8.8	3.7	3.7
2	H17667	Ms.Keerthika	19/F	0.4	0.2	0.2	17	10	73	7	4.9	2.9	8.3	4.2	2.7
3	H7442	Mr.Kumaravel	25/M	1.1	0.4	0.7	15	9	56	7.8	4.5	3.3	7.6	3.9	4.3
4	H12068	Mr.Sakthimurugan	33/M	0.6	0.2	0.4	31	33	84	7.7	4.4	3.3	8.6	3.7	7.2
5	G32326	Mrs.Kadharma	29/F	0.4	0.2	0.2	26	28	41	7.8	5.0	2.8	8.1	7.1	3.2
6	H26474	Ms.Radhika	20/F	0.4	0.2	0.2	18	9	103	6.8	4.2	2.7	9.7	3.2	6.4
7	G85930	Mr.Palanivel	33/F	0.5	0.2	0.3	34	34	93	8.4	4.9	3.5	9.1	4.2	6.5
8	H17992	Mrs.Radha	35/F	0.7	0.3	0.4	15	20	68	7.2	4.2	3.0	8.7	3.7	6.4
9	H23387	Mrs.Sheelarani	33/F	0.3	0.2	0.1	17	13	92	7.5	4.2	3.2	8.1	4.2	6.0
10	H26831	Mr.Boopalan	49/M	0.9	0.3	0.6	20	42	102	7.6	4.6	3.0	8.5	4.5	6.9
11	H19563	Mrs.Dilshat	26/F	0.5	0.3	0.2	14	23	93	7.5	4.6	2.9	6.9	4.4	3.1
12	G73166	Mrs.Geethalakshmi	34/F	0.4	0.2	0.2	15	24	49	7.5	4.4	3.1	7.8	4.3	4.4
13	H24367	Mrs.Jayalakshmi	41/F	0.6	0.3	0.3	15	09	86	7.5	4.3	3.2	8.6	3.7	3.7
14	G89922	Mrs.Sumathi	46/F	0.4	0.2	0.2	21	21	50	7.1	4.3	2.8	8.5	4.5	4.9
15	H26132	Mrs.Mobina	36/F	0.5	0.2	0.5	19	13	40	7.9	4.3	3.6	8.0	3.7	2.2
16	H2011	Mr.Vignesh	21/M	0.8	0.3	0.8	21	15	102	7.7	4.4	3.3	8.5	6.1	4.7
17	H14663	Mrs.Jeyanthi	36/F	0.5	0.3	0.2	16	15	52	6.7	3.9	3.2	8.6	3.2	3.2
18	H26997	Ms.Pugalarasi	25/F	1.1	0.6	0.5	17	21	57	7.7	4.6	3.1	7.2	5.0	2.7
19	H12761	Mr.Shunmugam	33/M	0.9	0.3	0.6	23	21	60	7.7	4.6	3.1	8.2	2.8	1.2
20	G86365	Mrs.Jayalakshmi	50/F	0.4	0.1	0.3	30	15	57	7.8	4.2	3.5	8.3	3.5	6.1

LAB INVESTIGATIONS/BEFORE TREATMENT															
SNO	OP NO	Name	Age/ Sex	Bilirubin			SGOT	SGPT	ALKPHOS	Protein			CAL	PHOS	Uric acid
				T	DB	IDB				T	Alb	Glob			
21	G71874	Mr.Balasubramaniyan	23/M	0.9	9.4	0.5	21	26	56	7.2	4.6	2.7	8.5	3.7	5.8
22	H27778	Mrs.Marimuthu	30/F	0.4	0.2	0.2	19	21	64	8.3	4.6	3.7	8.3	7.4	4.7
23	H25912	Ms.Senbagam	26/F	0.4	0.2	0.2	15	14	88	7.1	4.2	2.9	8.1	7.9	4.8
24	H11701	Mrs.Vidya	29/F	0.6	0.2	0.4	16	15	94	7.1	4.5	2.6	8.3	4.3	3.7
25	H13931	Mrs.Deepalakshmi	28/F	0.5	0.2	0.3	26	35	95	7.8	4.4	3.4	8.3	3.6	6.8
26	H11445	Mrs.Leony	39/F	0.4	0.2	0.2	23	13	50	7.1	4.5	2.6	8.5	4.3	2.7
27	G73056	Mr.Gunasekaran	37/M	0.9	0.3	0.6	19	42	58	7.8	4.8	3.0	9.7	4.4	6.0
28	H26927	Ms.Monikarani	22/F	0.7	0.3	0.4	15	14	58	7.4	4.5	2.9	8.3	6.8	6.9
29	H29920	Mrs.Navaneetham	46/F	0.5	0.2	0.3	16	21	88	7.5	4.1	2.7	8.2	3.7	4.4
30	H15114	Mr.Ramesh	30/M	1.1	0.5	0.6	17	17	45	7.1	4.5	2.6	8.8	4.3	3.1
31	H28456	Ms.Gopika	19/F	0.8	0.4	0.4	16	23	87	7.4	5.0	2.6	8.3	4.5	5.9
32	H574	Mr.Nagaraj	19/M	0.7	0.3	0.4	13	20	87	7.3	4.9	2.5	8.3	4.2	6.2
33	F74960	Mr.Seethapathy	28/M	1.1	0.3	0.8	22	21	70	7.1	4.5	2.6	8.2	2.1	8.6
34	H18109	Mr.Thiyagarajan	57/M	0.7	0.3	0.4	21	17	46	7.3	4.2	3.1	8.8	2.8	5.9
35	H25074	Mr.Navaraj	32/M	0.8	0.3	0.5	17	16	62	7.3	4.6	2.7	8.8	2.6	9.5
36	H33269	Mr.Adalarasu	20/M	1.2	0.4	0.8	19	12	50	08	4.7	3.3	8.4	3.6	8.8
37	H25538	Ms.Leena	35/F	0.6	0.2	0.4	17	14	102	7.9	4.3	3.6	7.9	3.7	3.7
38	H1185	Mr.Suresh	35/M	0.6	0.2	0.4	24	27	113	7.7	4.4	3.3	8.6	3.6	5.5
39	E98016	Mr.Vengai Diliban	23/M	1.2	0.4	0.8	24	16	77	7.2	4.6	2.6	9.3	3.6	5.2
40	H34343	Mrs.Yogalakshmi	21/F	0.4	0.2	0.2	13	07	63	7.6	4.6	3.0	8.2	4.5	3.2

LAB INVESTIGATIONS/AFTER TREATMENT															
SNO	OP NO	Name	Age/ Sex	Bilirubin			SGOT	SGPT	ALKPHOS	Protein			CAL	PHOS	Uricacid
				T	DB	IDB				T	Alb	Glob			
1	G92139	Mrs.Chandra	50/F	0.4	0.2	0.2	15	12	84	7.3	4.1	3.2	8.8	3.7	3.7
2	H17667	Ms.Keerthika	19/F	0.4	0.2	0.2	16	08	75	7.4	4.6	2.8	8.7	4.2	2.8
3	H7442	Mr.Kumaravel	25/M	1.2	0.5	0.7	17	6	66	7.9	4.6	3.3	8.4	66	4.4
4	H12068	Mr.Sakthimurugan	33/M	0.8	0.4	0.4	31	33	84	6.9	4.5	2.4	8.6	4.3	5.8
5	G32326	Mrs.Kadharma	29/F	0.3	0.2	0.1	19	15	30	7.3	4.4	2.9	8.4	6.9	3.9
6	H26474	Ms.Radhika	20/F	0.4	0.2	0.2	21	8	96	6.8	4.1	2.7	9.9	3.3	6.4
7	G85930	Mr.Palanivel	33/F	0.6	0.2	0.4	32	20	88	7.9	4.6	3.3	9.2	3.5	6.5
8	H17992	Mrs.Radha	35/F	0.6	0.3	0.3	15	20	83	7.1	4.1	3.0	8.7	3.4	6.3
9	H23387	Mrs.Sheelarani	33/F	0.5	0.2	0.3	17	06	72	6.9	4.6	2.3	8.2	5.2	4.6
10	H26831	Mr.Boopalan	49/M	0.9	0.3	0.6	27	35	85	7.1	4.3	2.8	8.5	4.3	6.6
11	H19563	Mrs.Dilshat	26/F	0.6	0.3	0.3	20	16	90	7.2	4.4	2.8	7.5	4.3	2.8
12	G73166	Mrs.Geethalakshmi	34/F	0.4	0.2	0.2	16	12	37	6.9	3.9	3.0	8.2	3.5	4.4
13	H24367	Mrs.Jayalakshmi	41/F	0.7	0.3	0,4	15	09	85	7.5	4.2	3.3	8.6	3.8	3.2
14	G89922	Mrs.Sumathi	46/F	0.5	0.2	0.3	22	22	52	7.4	4.4	3.0	9.0	3.2	4.7
15	H26132	Mrs.Mobina	36/F	0.7	0.3	0.4	18	13	42	7.9	4.4	3.5	8.8	3.6	2.6
16	H2011	Mr.Vignesh	21/M	0.6	0.1	0.5	16	11	106	7.4	4.4	3.0	9.5	5.3	4.3
17	H14663	Mrs.Jeyanthi	36/F	0.5	0.3	0.2	15	16	50	6.9	4.2	2.7	8.7	3.4	3.2
18	H26997	Ms.Pugalarasi	25/F	1.0	0.4	0.6	22	10	48	6.8	4.	2.4	7.8	4.8	2.4
19	H12761	Mr.Shunmugam	33/M	0.8	0.4	0.4	18	14	56	6.9	4.4	2.5	8.3	3.0	4.9
20	G86365	Mrs.Jayalakshmi	50/F	0.4	0.1	0.3	36	17	43	7.8	4.8	3.4	9.2	4.2	5.3

LAB INVESTIGATIONS/AFTER TREATMENT															
SNO	OP NO	Name	Age/ Sex	Bilirubin			SGOT	SGPT	ALKPHOS	Protein			CAL	PHOS	Uricacid
				T	DB	IDB				T	Alb	Glob			
21	G71874	Mr.Balasubramaniyan	23/M	0.9	0.6	0.3	20	33	56	7.3	4.6	2.7	8.8	3.8	5.6
22	H27778	Mrs.Marimuthu	30/F	0.3	0.1	0.2	21	23	53	7.3	4.4	2.9	9.3	4.3	4.4
23	H25912	Ms.Senbagam	26/F	0.5	0.2	0.3	15	9	88	6.6	4.1	2.5	8.4	6.1	4.0
24	H11701	Mrs.Vidya	29/F	0.6	0.2	0.4	15	14	82	7.2	4.6	2.6	8.7	3.2	3.5
25	H13931	Mrs.Deepalakshmi	28/F	0.5	0.2	0.3	17	18	108	7.7	4.4	3.3	8.6	3.4	6.2
26	H11445	Mrs.Leony	39/F	0.5	0.2	0.3	22	13	40	6.5	4.2	2.3	8.7	4.2	2.7
27	G73056	Mr.Gunasekaran	37/M	0.8	0.3	0.5	20	33	90	7.2	4.2	3.0	9.9	4.3	5.3
28	H26927	Ms.Monikarani	22/F	0.8	0.3	0.5	13	14	48	6.9	4.5	2.4	8.3	4.3	4.4
29	H29920	Mrs.Navaneetham	46/F	0.7	0.3	0.4	18	19	72	6.8	4.2	3.3	8.2	3.5	4.0
30	H15114	Mr.Ramesh	30/M	0.9	0.3	0.6	15	17	41	7.1	4.7	2.4	9.7	4.2	2.8
31	H28456	Ms.Gopika	19/F	0.7	0.3	0.4	17	15	36	7.0	4.7	2.3	9.3	4.3	4.2
32	H574	Mr.Nagaraj	19/M	0.7	0.3	0.4	13	20	87	7.3	4.9	2.5	8.5	4.5	5.7
33	F74960	Mr.Seethapathy	28/M	0.8	0.4	0.4	21	21	65	7.1	4.4	2.6	8.6	2.8	4.1
34	H18109	Mr.Thiyagarajan	57/M	0.7	0.3	0.4	20	20	46	7.0	4.2	2.8	8.0	4.2	5.9
35	H25074	Mr.Navaraj	32/M	0.9	0.3	0.6	19	18	57	7.0	4.6	2.4	8.9	4.3	5.3
36	H33269	Mr.Adalarasu	20/M	1.1	0.4	0.7	18	14	48	7.3	4.7	2.6	9.4	3.5	8.6
37	H25538	Ms.Leena	35/F	0.5	0.1	0.4	11	13	89	7.1	4.2	2.9	8.5	3.8	5.2
38	H1185	Mr.Suresh	35/M	0.4	0.2	0.2	29	18	113	7.7	4.4	3.3	8.6	4.6	5.5
39	E98016	Mr.Vengai Diliban	23/M	1.0	0.4	0.6	20	13	88	6.9	4.8	2.3	9.3	3.6	5.2
40	H34343	Mrs.Yogalakshmi	21/F	0.3	0.1	0.2	14	06	49	7.0	4.7	2.3	8.4	4.5	2.8

LAB INVESTIGATIONS/BEFORE TREATMENT													
SNO	OP/IP NO	Name	Age/ sex	AFB	XRAY	Urine						Motion	
						Alb	Sugar	Deposits	BS	BP	URO	Ova	Cyst
1	G92139	Mrs.Chandra	50/F	Negative	Normal	Nil	Nil	2-3 Pus	Nil	Nil	N	Nil	Nil
2	H17667	Ms.Keerthika	19/F	Negative	Normal	Nil	Nil	2-3 Pus	Nil	Nil	N	Nil	Nil
3	H7442	Mr.Kumaravel	25/M	Negative	Normal	Nil	Nil	1-2 Pus	Nil	Nil	N	Nil	Nil
4	H12068	Mr.Sakthimurugan	33/M	Negative	Normal	Nil	Nil	2-3 Pus	Nil	Nil	N	Nil	Nil
5	G32326	Mrs.Kadharma	29/F	Negative	Normal	Nil	Nil	2-3 Pus	Nil	Nil	N	Nil	Nil
6	H26474	Ms.Radhika	20/F	Negative	Normal	Nil	Nil	1-2 Pus	Nil	Nil	N	Nil	Nil
7	G85930	Mr.Palanivel	33/F	Negative	Normal	Nil	Nil	2-4 Pus	Nil	Nil	N	Nil	Nil
8	H17992	Mrs.Radha	35/F	Negative	Normal	Nil	Nil	1-2 Pus	Nil	Nil	N	Nil	Nil
9	H23387	Mrs.Sheelarani	33/F	Negative	Normal	Nil	Nil	1-2 Pus	Nil	Nil	N	Nil	Nil
10	H26831	Mr.Boopalan	49/M	Negative	Normal	Nil	Nil	2-4 Pus	Nil	Nil	N	Nil	Nil
11	H19563	Mrs.Dilshat	26/F	Negative	Normal	Nil	Nil	2-3 Pus	Nil	Nil	N	Nil	Nil
12	G73166	Mrs.Geethalakshmi	34/F	Negative	Normal	Nil	Nil	2-4 Pus	Nil	Nil	N	Nil	Nil
13	H24367	Mrs.Jayalakshmi	41/F	Negative	Normal	Nil	Nil	2-4 Pus	Nil	Nil	N	Nil	Nil
14	G89922	Mrs.Sumathi	46/F	Negative	Normal	Nil	Nil	2-4 Pus	Nil	Nil	N	Nil	Nil
15	H26132	Mrs.Mobina	36/F	Negative	Normal	Nil	Nil	4-6 Pus	Nil	Nil	N	Nil	Nil
16	H2011	Mr.Vignesh	21/M	Negative	Normal	Nil	Nil	2-4 Pus	Nil	Nil	N	Nil	Nil
17	H14663	Mrs.Jeyanthi	36/F	Negative	Normal	Nil	Nil	2-4 Pus	Nil	Nil	N	Nil	Nil
18	H26997	Ms.Pugalarasi	25/F	Negative	Normal	Nil	Nil	2-4 Pus	Nil	Nil	N	Nil	Nil
19	H12761	Mr.Shunmugam	33/M	Negative	Normal	Nil	Nil	1-3 Pus	Nil	Nil	N	Nil	Nil
20	G86365	Mrs.Jayalakshmi	50/F	Negative	Normal	Nil	Nil	3-5 Pus	Nil	Nil	N	Nil	Nil

LAB INVESTIGATIONS/BEFORE TREATMENT													
SNO	OP/IP NO	Name	Age/ sex	AFB	XRAY	Urine						Motion	
						Alb	Sugar	Deposits	BS	BP	URO	Ova	Cyst
21	G71874	Mr.Balasubramaniyan	23/M	Negative	Normal	Nil	Nil	1-4 Pus	Nil	Nil	N	Nil	Nil
22	H27778	Mrs.Marimuthu	30/F	Negative	Normal	Nil	Nil	1-2 Pus	Nil	Nil	N	Nil	Nil
23	H25912	Ms.Senbagam	26/F	Negative	Normal	Nil	Nil	4-6 Pus	Nil	Nil	N	Nil	Nil
24	H11701	Mrs.Vidya	29/F	Negative	Normal	Nil	Nil	2-4 Pus	Nil	Nil	N	Nil	Nil
25	H13931	Mrs.Deepalakshmi	28/F	Negative	Normal	Nil	Nil	2-4 Pus	Nil	Nil	N	Nil	Nil
26	H11445	Mrs.Leony	39/F	Negative	Normal	Nil	Nil	4-6 Pus	Nil	Nil	N	Nil	Nil
27	G73056	Mr.Gunasekaran	37/M	Negative	Normal	Nil	Nil	2-4 Pus	Nil	Nil	N	Nil	Nil
28	H26927	Ms.Monikarani	22/F	Negative	Normal	Nil	Nil	1-2 Pus	Nil	Nil	N	Nil	Nil
29	H29920	Mrs.Navaneetham	46/F	Negative	Normal	Nil	Nil	2-4 Pus	Nil	Nil	N	Nil	Nil
30	H15114	Mr.Ramesh	30/M	Negative	Normal	Nil	Nil	3-5 Pus	Nil	Nil	N	Nil	Nil
31	H28456	Ms.Gopika	19/F	Negative	Normal	Nil	Nil	2-3 Pus	Nil	Nil	N	Nil	Nil
32	H574	Mr.Nagaraj	19/M	Negative	Normal	Nil	Nil	1-2 Pus	Nil	Nil	N	Nil	Nil
33	F74960	Mr.Seethapathy	28/M	Negative	Normal	Nil	Nil	2-3 Pus	Nil	Nil	N	Nil	Nil
34	H18109	Mr.Thiyagarajan	57/M	Negative	Normal	Nil	Nil	2-4 Pus	Nil	Nil	N	Nil	Nil
35	H25074	Mr.Navaraj	32/M	Negative	Normal	Nil	Nil	2-4 Pus	Nil	Nil	N	Nil	Nil
36	H33269	Mr.Adalarasu	20/M	Negative	Normal	Nil	Nil	3-5 Pus	Nil	Nil	N	Nil	Nil
37	H25538	Ms.Leena	35/F	Negative	Normal	Nil	Nil	6-8 Pus	Nil	Nil	N	Nil	Nil
38	H1185	Mr.Suresh	35/M	Negative	Normal	Nil	Nil	3-5 Pus	Nil	Nil	N	Nil	Nil
39	E98016	Mr.Vengai Diliban	23/M	Negative	Normal	Nil	Nil	3-5 Pus	Nil	Nil	N	Nil	Nil
40	H34343	Mrs.Yogalakshmi	21/F	Negative	Normal	Nil	Nil	2-4 Pus	Nil	Nil	N	Nil	Nil

LAB INVESTIGATIONS/AFTER TREATMENT													
SNO	OP/IP NO	Name	Age/ Sex	AFB	XRAY	Urine						Motion	
						Alb	Sugar	Deposits	BS	BP	URO	Ova	Cyst
1	G92139	Mrs.Chandra	50/F	Negative	Normal	Nil	Nil	2-3 Pus	Nil	Nil	N	Nil	Nil
2	H17667	Ms.Keerthika	19/F	Negative	Normal	Nil	Nil	2-4 Pus	Nil	Nil	N	Nil	Nil
3	H7442	Mr.Kumaravel	25/M	Negative	Normal	Nil	Nil	1-2 Pus	Nil	Nil	N	Nil	Nil
4	H12068	Mr.Sakthimurugan	33/M	Negative	Normal	Nil	Nil	1-2 Pus	Nil	Nil	N	Nil	Nil
5	G32326	Mrs.Kadharma	29/F	Negative	Normal	Nil	Nil	1-2 Pus	Nil	Nil	N	Nil	Nil
6	H26474	Ms.Radhika	20/F	Negative	Normal	Nil	Nil	2-3 Pus	Nil	Nil	N	Nil	Nil
7	G85930	Mr.Palanivel	33/F	Negative	Normal	Nil	Nil	1-2 Pus	Nil	Nil	N	Nil	Nil
8	H17992	Mrs.Radha	35/F	Negative	Normal	Nil	Nil	1-2 Pus	Nil	Nil	N	Nil	Nil
9	H23387	Mrs.Sheelarani	33/F	Negative	Normal	Nil	Nil	1-2 Pus	Nil	Nil	N	Nil	Nil
10	H26831	Mr.Boopalan	49/M	Negative	Normal	Nil	Nil	2-4 Pus	Nil	Nil	N	Nil	Nil
11	H19563	Mrs.Dilshat	26/F	Negative	Normal	Nil	Nil	2-3 Pus	Nil	Nil	N	Nil	Nil
12	G73166	Mrs.Geethalakshmi	34/F	Negative	Normal	Nil	Nil	2-3 Pus	Nil	Nil	N	Nil	Nil
13	H24367	Mrs.Jayalakshmi	41/F	Negative	Normal	Nil	Nil	2-3 Pus	Nil	Nil	N	Nil	Nil
14	G89922	Mrs.Sumathi	46/F	Negative	Normal	Nil	Nil	1-2 Pus	Nil	Nil	N	Nil	Nil
15	H26132	Mrs.Mobina	36/F	Negative	Normal	Nil	Nil	1-2 Pus	Nil	Nil	N	Nil	Nil
16	H2011	Mr.Vignesh	21/M	Negative	Normal	Nil	Nil	1-2 Pus	Nil	Nil	N	Nil	Nil
17	H14663	Mrs.Jeyanthi	36/F	Negative	Normal	Nil	Nil	2-3 Pus	Nil	Nil	N	Nil	Nil
18	H26997	Ms.Pugalarasi	25/F	Negative	Normal	Nil	Nil	1-2 Pus	Nil	Nil	N	Nil	Nil
19	H12761	Mr.Shunmugam	33/M	Negative	Normal	Nil	Nil	1-2 Pus	Nil	Nil	N	Nil	Nil
20	G86365	Mrs.Jayalakshmi	50/F	Negative	Normal	Nil	Nil	2-4 Pus	Nil	Nil	N	Nil	Nil

LAB INVESTIGATIONS/AFTER TREATMENT													
SNO	OP/IP NO	Name	Age/ Sex	AFB	XRAY	Urine						Motion	
						Alb	Sugar	Deposits	BS	BP	URO	Ova	Cyst
21	G71874	Mr.Balasubramaniyan	23/M	Negative	Normal	Nil	Nil	1-2 Pus	Nil	Nil	N	Nil	Nil
22	H27778	Mrs.Marimuthu	30/F	Negative	Normal	Nil	Nil	2-4 Pus	Nil	Nil	N	Nil	Nil
23	H25912	Ms.Senbagam	26/F	Negative	Normal	Nil	Nil	1-2 Pus	Nil	Nil	N	Nil	Nil
24	H11701	Mrs.Vidya	29/F	Negative	Normal	Nil	Nil	2-4 Pus	Nil	Nil	N	Nil	Nil
25	H13931	Mrs.Deepalakshmi	28/F	Negative	Normal	Nil	Nil	1-2 Pus	Nil	Nil	N	Nil	Nil
26	H11445	Mrs.Leony	39/F	Negative	Normal	Nil	Nil	1-3 Pus	Nil	Nil	N	Nil	Nil
27	G73056	Mr.Gunasekaran	37/M	Negative	Normal	Nil	Nil	1- 2 Pus	Nil	Nil	N	Nil	Nil
28	H26927	Ms.Monikarani	22/F	Negative	Normal	Nil	Nil	2-3 Pus	Nil	Nil	N	Nil	Nil
29	H29920	Mrs.Navaneetham	46/F	Negative	Normal	Nil	Nil	2-3 Pus	Nil	Nil	N	Nil	Nil
30	H15114	Mr.Ramesh	30/M	Negative	Normal	Nil	Nil	2-3 Pus	Nil	Nil	N	Nil	Nil
31	H28456	Ms.Gopika	19/F	Negative	Normal	Nil	Nil	1-2 Pus	Nil	Nil	N	Nil	Nil
32	H574	Mr.Nagaraj	19/M	Negative	Normal	Nil	Nil	1-2 Pus	Nil	Nil	N	Nil	Nil
33	F74960	Mr.Seethapathy	28/M	Negative	Normal	Nil	Nil	2-3 Pus	Nil	Nil	N	Nil	Nil
34	H18109	Mr.Thiyagarajan	57/M	Negative	Normal	Nil	Nil	1-2 Pus	Nil	Nil	N	Nil	Nil
35	H25074	Mr.Navaraj	32/M	Negative	Normal	Nil	Nil	1-2 Pus	Nil	Nil	N	Nil	Nil
36	H33269	Mr.Adalarasu	20/M	Negative	Normal	Nil	Nil	1-2 Pus	Nil	Nil	N	Nil	Nil
37	H25538	Ms.Leena	35/F	Negative	Normal	Nil	Nil	1-3 Pus	Nil	Nil	N	Nil	Nil
38	H1185	Mr.Suresh	35/M	Negative	Normal	Nil	Nil	1-3 Pus	Nil	Nil	N	Nil	Nil
39	E98016	Mr.Vengai Diliban	23/M	Negative	Normal	Nil	Nil	1-2 Pus	Nil	Nil	N	Nil	Nil
40	H34343	Mrs.Yogalakshmi	21/F	Negative	Normal	Nil	Nil	1-2 Pus	Nil	Nil	N	Nil	Nil

DISCUSSION

DISCUSSION

Swasa kasam is a disease characterised by cough with or without expectoration, irritation of throat, breath sound like hissing of snake, redness of nose, flatulence and low pitched voice. The signs and symptoms of Swasa kasam as per saint Yugi can be correlated with Bronchial asthma in Modern science.

- The aim of the study is to document the trial drug Mantharakasa lehiyum of the Siddha Herbal formulation in the treatment of Swasa kasam.

- The study protocol has been approved by Institutional Ethical Committee. (IEC approval number: NIS/IEC/8-14/1 -26-08-2014)

- The required raw drugs for preparation of Mantharakasa lehiyum are authenticated by the Botanist NIS. The drugs were purified and medicine was prepared in Gunapadam laboratory of National institute of siddha.

- The biochemical (both Qualitative and Quantitative) analysis of the trial drug Mantharakasa lehiyum was done in the laboratories and the results were documented. The physico chemical analysis also done in SCRI, Arumbakkam, Chennai.

- The present clinical study was done as per the approved protocol and the data were collected by using the Screening proforma from the 80 patients.
- Out of 80 patients, 40 were enrolled to the clinical trial, satisfying the inclusion and exclusion criteria.
- A day before starting the trial drugs treatment, to normalize the three thodams by purgation with Mantha ennai (OPD Medicine) was given at the dose of 8ml with warm water at early morning in empty stomach.
- The patients were treated for a period of 48 days with Mantharakasa lehiyum (Internal medicine) at the dose of 5.4 gm, twice a day after meal.
- Diet and medical advice were given to all cases.
- Clinical assessment was done during each visit in OPD patients (8 days once) were noted in the prescribed proforma. After treatment all the patients attended OPD in followup period.

The observations discussed below:

- **Sex Distribution**

  Out of 40 patients, the incidence of Swasa kasam was found to be higher in Females (24 cases, 60%)

- **Age Distribution**

  A total of 40 patients of varying age group were included in this study, the maximum age distribution of Swasa kasam was in 21-30 age groups 15 cases (37.5%) due to sedentary life style.

- **Kaalam Distribution**

  Out of 40 cases, 25 cases (62.5%) were found to be affected in their Vatha kaalam (Between 1 - 33 years) and 15 cases (37.5%) were found to be affected in their Pitha kaalam (Between 34 - 66 years).

- **Occupational Distribution**

  Most of the affected cases were housewives 16 cases (40%), Students 7cases (17.5%), Software Engineers, Painters, Clerks, Shopkeepers 2cases (5%), and Milkman, Textile worker, Police, Tailor, Fitter, Teacher, Driver 1 case (2.5%). Moreover sedentary life style adds more to this problem.

- **Distribution of cases by Duration of illness**

  Out of 40 cases, 20 cases (50%) were affected in the duration of 3-6 year, 7 cases (17.5%) were affected by the illness from1-2 years & 2-3 years, 4cases (10%) were affected by the illness from 6 month- 1 year and 2 cases(5%) were affected by the illness from 3-6 months.

- **Distribution of Habits**

  All the 40 cases are non smokers, non alcohol consumers and non chewer of betel nut.

- **Distribution of cases by Diet**

  Among 40 cases, 36 cases (90%) had taken Non-Vegetarian; remaining 4 cases (10%) were vegetarians. As per the literature, the dietary factors that cause the disease are taking non-vegetarian diet and taking improperly cooked food.

- **Distribution of cases as per Religion**

  Among 40 cases, 36 cases (90%) were Hindu, 1 case (2.5%) was Christians and 3 cases (7.5%) were Muslims.

- **Distribution of cases as per Socio-Economic status**

Out of 40 cases the higher level of disease distribution was observed in middle socio economical groups 35 cases (87.5 %) due to sedentary life style.

- **Distribution of cases as per Treatment history**

Out of 40 cases, 27 cases (67.5%) had taken other modes of treatment in the past and 13 cases (32.5%) had not taken any modes of treatment prior enrolling the study.

- **Distribution of cases as per Triggering factors**

Among 40 cases(100%), majority of them were allergic to dust and cold, food additive 13 cases (32.5%), smoke exposure 11 cases (27.5%) and occupation 9 cases (22.5%). As per the literature Dust, Smoke exposure, Cold exposure and Excessive food items, lifestyles are considered to be the main predisposing factor of Swasa kasam.

- **Distribution of cases as per Marital history**

Among 40 cases, 26 cases (60%) reported were married and 14 cases (40%) were unmarried.

- **Distribution of cases by Family History**

Among 40 cases 32 cases (80%) reported negative family history and 8 cases (20%) reported positive family history of Swasa kasam. It is showed that most of the patients had negative family history.

- **Distribution of cases by Thegi**

Out of 40 cases, 16 cases (40%) were Vadha thegi, 9 cases (22.5%) were Pitha thegi and 15 Cases (37.5%) were Kaba thegi.

- **Thinai Distribution**

Among 40 cases, 33 cases (82.5%) belonged to the Neithal (i.e.sea & its surroundings) and 7 cases (17.5%) belonged to the Marutham (i.e. plain & its surroundings).

- **Paruva Kaalam Distribution**

Among 40 cases, 4 cases (10%) were admitted in Munpanikaalam (Dec 16 - Feb 15) and 36 cases (90%) were admitted in Pinpanikaalam (Feb16 - Apr 15).

- **Distribution of cases as per Gunam**

Out of cases, 2cases (5%) were found to posses Sathuva gunam and 38 cases (95%) were found to posses Rasatha gunam.

- **Distribution of cases as per Clinical Features**

  Before treatment among 40 cases, all the 40 cases (100%) had wheezing, difficulty in breathing, sneezing, dry or production cough, tightness of chest, 34 cases (84%) had hoarseness of voice and 12 cases (30%) had Sleep disturbance and nocturnal wheezing.

- **Derangements noted In Gnanendhiriyam**

  Among 40 cases, Mookku was affected in 15 cases (37.5%) due to running nose and nasal block.

- **Derangements noted In Kanmendhiriyam**

  Out of 40 cases, Kai was affected in 1 case (2.5%), Kaal was affected in 3 cases (7.5%) due to pain in upper and lower limbs. Eruvai was affected in 3 cases (7.5%) due to constipation.

- **Derangements noted In Kosam**

  Out of 40 cases, Pranamaya kosam was affected in all the patients due to breathlessness, cough, wheeze and tightness of chest. Annamayakosam was affected in 9 cases (22.5%) due to indigestion and Vingyanamayakisam was affected in 5 cases (12.5%).

- **Derangements noted In Vatham**

  Out of 40 cases, Pranan was affected in 40 cases (100%) due to breathlessness, cough, wheeze , Abanan was affected in 3 cases (7.5%) due to constipation,Viyanan was affected in 4 cases (10%) due to pain in lower limbs, Udhanan and Samanan were affected in 40 cases (100%) due to low pitched voice, Kirukaran was affected in 40 cases (100%) due to excessive cough reflex, excessive sneezing reflex and Dhevathathan was affected in 40 cases (100%) due to tiredness.

- **Derangements noted In Pitham**

  Sadhaga pitham was affected in all 40 cases (100%) and Ranjagapitham was affected in 6cases (15%).

- **Derangements noted In Kabam**

  Avalambagam was affected in all the 40 cases (100%) due to the presence of tightness of chest, cough, wheezing and breathlessness. Kilethagam was affected in 9 cases (22.5%) due to loss of appetite. Sandhigam was affected in 4 cases (10%) due to joints pain.

- **Derangements Noted In Ezhu udal kattugal**

  Saram was affected in all cases (100%), Seneer was affected in 6cases (15%). Enbu was affected in 4 cases (10%) due to joint pain.

- **Derangements noted In Ennnvagai thervugal**

  Mozhi was affected in all 40 cases (100%) due to low pitched voice and difficulty in speech, Malam was affected in 3 cases (7.5%) due to constipation.

- **Distribution of cases by Naadi**

  In Naadi, 20 cases (50%) had vadha pitha naadi, 13 cases (32.5%) had pitha vatha naadi and 7 cases (17.5%) had kaba pitha naadi.

- **Distribution of cases by Neikuri**

  Among 40 patients, 15 cases (37.5%) had Vadha neer, 7 cases (17.5%) had Pitha neer and 18 cases (45%) had kapha neer.

- **Laboratory Investigations**

  Routine investigations of blood and urine were done before and after treatment in every case. Sputum examination for AFB was found to be negative for all the patients.

  Before treatment blood investigations of patients showed Eosinophils count was increased, its ranged from 4- 18% cells and after treatment its ranged from 3-8%. ESR (Erythrocyte Sedimentation Rate), Serum IgE and AEC (Absolute esinophil count) were raised in before treatment and the after treatment it was moderately reduced. Out of 40 cases, in 14 cases (35%) Serum IgE level was reduced well, in 18 cases (45%) serum IgE level was moderately reduced, in 8 cases (20%) serum IgE level was slightly redeced.

  Other hematological parameters were normal in before treatment and after treatment.Biochemical parameters were found to be normal range in before and after treatment.

- **Radiological Examination**

  Before treatment, chest X-ray PA view showed no abnormal findings observed in 100% of the 40 cases.

- **Special Investigation**

  Among the 24 Female (60%) patients the peak expiratory flow rate ranged from 120 lit/min to 180 lit/min before treatment and after treatment it ranged from

220 lit/min to 410 lit/min. Among the 16 Male (40%) patients the peak expiratory flow rate ranged from 180 lit/min to 230 lit/min before treatment and after treatment it ranged from 340 lit/min to 500 lit/min.

- **Primary Outcome**

  As per objective parameters (PEFR)

  After treatment, Out of 40 cases, 25 cases (62.5%) showed good improvement and completely relieved from wheezing, 11 cases (27.5%) showed moderately improvement, 4 cases (10%) showed mild improvement.

- **Secondary Outcome**

  As per subjective parameters (Clinical symptoms)

  After treatment, Out of 40 cases, 82.5% cases relieved from cough, 77.5% cases were relieved from sneezing, and 97.5% cases were relieved from Hoarseness of voice.

- **Gradation of results**

  Out of 40 cases, Clinical results were found to be good in 75% of cases, Fair results were found in 17.5% of cases and Poor results were found in 7.5% of cases.

SUMMARY

SUMMARY

- The aim of the study is to evaluate the therapeutic efficacy of trial drug Mantharakasa lehiyum (Internal medicine) in the management of Swasa kasam (Bronchial asthma).
- The study protocol has been approved by Institutional ethical committee. (IEC approval number: NIS/IEC/8-14/1 -26-08-2014)
- The raw drugs were authenticated by concerned department and the medicine was prepared in the Gunapadam laboratory of National Institute of Siddha.
- Biochemical analysis (Qualitative analysis) was done in the Biochemistry lab of NIS and Physico chemical analysis and HPTLC were done at SCRI, Arumbakkam, Chennai.
- For the clinical study, 40 cases were selected based on the inclusion and exclusion criteria and treated in OPD of Ayothidoss pandithar hospital of NIS, Chennai.
- A day before starting the trial drug treatment, purgation was given to correct the elevated mukkutram.
- The clinical trial was conducted in 40 patients of Swasa kasam with the trial drug Mantharakasa lehiyum (Internal medicine) at the dose of 5.4gm twice a day after food. During the study period, there were no adverse reactions.
- The trial drug was found to play the major role to correct the deranged three humours, thereby correcting Pranan, Abanan, Udhanan, Kirugaran, Devathathan, Pitham such as Anal Pitham, Ranjagam and the vitiated kabam is restored to the normal.
- Blood and urine Investigations were carried out before and after treatment and data were recorded in the proforma.
- Radiological investigations (Chest X-ray PA view) and ECG were also done before treatment.
- Clinical assessments Progress were done once in 8 days for OPD patients.
- As per objective parameters (PEFR) Out of 40 cases, 25(62.5%) cases showed clinically good improvement, 11cases (27.5%) showed moderately improvement, 4 cases (10%) showed mild improvement.

- Out of 40 cases, Clinical results were found to be good in 75% of cases, Fair results were found in 17.5% of cases and Poor results were found in 7.5% of cases.
- This ensures the safety usuage of the drug as per the literature.
- **Biochemical study**

Qualitative analysis of Mantharakasa lehiyum reveals that the trial medicine contains the following:

- Chloride
- Phosphate
- Iron
- Sodium
- Starch
- Reducing sugar
- Alkaloids
- Tannic acid
- Unsaturated compounds

- **Physicochemical analysis**

S.NO	PARAMATERS	VALUES
1.	Loss on drying at 105^0 C	17.58%
2.	Total ash	3.233%
3.	Water soluble ash	1.996%
4.	Acid soluble ash	0.054%
5.	Water soluble extractives	47.482%
6.	Alcohol soluble extractives	57.550%
7.	Fat content	4.350%
8.	Total solid content	82.42%
9.	pH	6.7
10.	Reducing sugar	7.83%
11.	Total sugar	47.81%

- **HPTLC Report**

HPTLC fingerprint at 254nmUV showed highest peak in 7^{th} peak (0.32Rf, 21.16%Area) which could serve as a marker and it is responsible for biological action.

HPTLC fingerprint at 366nmUV showed highest peak in 7^{th} peak (0.34Rf, 30.43%Area) which could serve as a marker and it is responsible for biological action.

CONCLUSION

CONCLUSION

- As per objective parameters (PEFR) Out of 40 cases, 25 cases (62.5%) showed clinically good improvement, 11cases (27.5%) showed moderately improvement, 4 cases (10%) showed mild improvement.
- Out of 40 cases, Clinical results were found to be good in 75% of cases, Fair results were found in 17.5% of cases and Poor results were found in 7.5% of cases
- The results of the clinical trial indicate that the trial drug is clinically effective in Bronchial asthma. No adverse effects were reported during the course of treatment.
- The method of preparation is simple, cost is comparatively economical and the medicine is one of the complete herbal medicine.
- No recurrence of episodes in the follow up of period of 60 days.
- Phytochemical analysis should presence of Alkaloids which is responsible for its therapeutic action.
- Physicochemical values are within the limits.
- HPTLC fingerprint could serve as a marker.
- The trial drug gives good results clinically, so the study may be undertaken with same medicine in a large number of cases and it may throw new lights for the treatment of Swasa kasam.

ANNEXURES

PROFORMA

NATIONAL INSTITUTE OF SIDDHA,
AYOTHIDASS PANDITHAR HOSPITAL,
DEPARTMENT OF MARUTHUVAM,
AN OPEN CLINICAL STUDY ON SWASA KASAM (BRONCHIAL ASTHMA)
AND THE DRUG OF CHOICE IS "MANTHARAKASA LEHIYUM" (INTERNAL)

FORM I- SCREENING AND SELECTION PROFORMA

1. O.P No _____ 2.IP.NO: _____3. S. No_____

4. Name: _____ 5. Age: _____ 6. Gender: M/F 7. Occupation

_____

8. Phone number _____

9.Address_____

_____

_____

_____

10. INCLUSION CRITERIA	Yes	No
• Age : 19- 60 Yrs	☐	☐
• Sex – Both Male and Female	☐	☐
• The symptoms of, cough, wheezing, Difficulty in breathing etc PEFR below normal range (From 150 L/min to 250 L/min for men; from 100 L/min to 200 L/min for women).	☐	☐
• H/O allergy	☐	☐
• Patient willing to sign the informed consent stating that he/she will Conscientiously stick to the treatment during 48 days but can opt out of the trial of his/her own conscious discretion.	☐	☐
• Patients who are willing to subject themselves to take X Ray of Chest (PA view) ECG, PEFR, as well as to Undergo routine lab investigation.	☐	☐

1. **EXCLUSION CRITERIA**

	Yes	No		Yes	No
1. Cardiac disease			.7. Hyper tension		
2. Renal disease			8. Pregnancy		
3. Tuberculosis.			9. Lactation.		
4. COPD.			10. Psychological factor.		
5. Status asthmaticus			11. Worm infestation.		
6. Diabetes mellitus					

10. PEFR (Peak Expiratory Flow Rate) [L/min] –

11. ADMITTED TO TRAIL: YES ☐ NO ☐ If Yes Serial NO: ----

Date: Signature of the Investigator:

Station: Signature of the Lecturer:

Signature of the HOD:

NATIONAL INSTITUTE OF SIDDHA,
AYOTHIDASS PANDITHAR HOSPITAL,
DEPARTMENT OF MARUTHUVAM,
AN OPEN CLINICAL STUDY ON SWASA KASAM (BRONCHIAL ASTHMA)
AND THE DRUG OF CHOICE IS "MANTHARAKASA LEHIYUM" (INTERNAL)
FORM II-CASE RECORD FORM

1 **O.P NO** _____ **2. IP.NO**: _____**3. S. NO** _____

4. NAME_____.**5.AGE** ____ .**6. GENDER:** Male/Female

7. OCCUPATION _____

8.ADDRESS_____

_____

_____

9. EDUCATIONAL STATUS: A) Illiterate ☐ B) Literate ☐

10. HEIGHT _____ cms **11.WEIGHT:** ------- kg

12. COMPLIANTS AND DURATION:

_____

_____

_____

_____

13. HABITS OF	Yes	No	
A) Smoking	☐	☐	……
B) Alcoholism	☐	☐	……
C) Tobacco chewing	☐	☐	……
D) Betel nut chewing	☐	☐	……

14. DIETARY STYLE: Vegetarian ☐ Non vegetarian ☐

15. SOCIOECONOMIC STATUS: Lower ☐ Middle ☐ Upper ☐

16. DRUG HISTORY: Had the patient been treated before with allopathic drug? Yes ☐ No ☐

17. WHEEZING TRIGGER FACTORS:

Dust	Yes/No	Food additive	Yes/No
Smoke exposure	Yes/No	Fumes of paints and petrol.	Yes/No
Cold exposure	Yes/No	Detergents	Yes/No
Exercise	Yes/No	Chemicals	Yes/No
Emotion	Yes/No	Husks, Grass, Pollans.	Yes/No
Occupation	Yes/No	Menstruation	Yes/No
Others			

18. MARITAL STATUS 1.Married ☐ 2.Unmarried ☐

No of children: ☐ Male ☐ Female ☐

19. FAMILY HISTORY: Whether this problem runs in family? 1. Yes ☐ 2.No ☐

If yes, mention the relationship of affected person(s)

_____

20. MENSTRUAL HISTORY: Regular ☐ Irregular ☐ Menopause ☐

21. BOWEL HABITS & MICTURITION: Normal ☐

History of habitual constipation 1.Yes ☐ 2.No ☐

History of frequent diarrhoea 1.Yes ☐ 2.No ☐

History of frequent dysuria 1.Yes ☐ 2.No ☐

22. PSYCOLOGICAL STATE: Normal ☐ Anxiety ☐ Depression ☐

23. SIDDHA SYSTEM OF EXAMINATION: ENVAGAI THERVU: [EIGHT-FOLD EXAMINATION]
I.NAADI: [PULSE PERCEPTION]

	0^{th} day	**8^{th} day**	**16^{th} day**	**24^{th} day**	**32^{nd} day**	**40^{th} day**	**48^{th} day**
Vali							
Azhal							
Iyyam							
Vali Azhal							
Azhal vali							

Iyya vali							
Vali Iyyam							
Azhal Iyyam							
Iyya Azhal							

II.NAA:[TONGUE]

	0^{th} day	8^{th} day	16^{th} day	24^{th} day	32^{nd} day	40^{th} day	48^{th} day
Colour	Normal/Red pale/yellow	Normal/Red pale/yellow	Normal/Red pale/yellow	Normal/Red pale/yellow	Normal/Red pale/yellow	Normal/Red pale/yellow	Normal/Red pale/yellow
Taste	Sweet/Sour/ Pungent/ Bitter/ None	Sweet/Sour/ Pungent/ Bitter/None	Sweet/Sour/ Pungent/ Bitter/None	Sweet/Sour/ Pungent/ Bitter/None	Sweet/Sour/ Pungent/ Bitter/ None	Sweet/Sour/ Pungent/ Bitter/ None	Sweet/Sour/ Pungent/ Bitter/ None
Coating	Present/ Absent	Present/ Absent	Present/ Absent	Present/ Absent	Present/ Absent	Present/ Absent	Present/ Absent
Fissure	Present/ Absent	Present/ Absent	Present/ Absent	Present/ Absent	Present/ Absent	Present/ Absent	Present/ Absent
Saliva	Normal/ Increased/ Decreased	Normal/ Increased/ Decreased	Normal/ Increased / Decreased	Normal/ Increased/ Decreased	Normal/ Increased/ Decreased	Normal/ Increased/ Decreased	Normal/ Increased/ Decreased
Dryness	Present/ Absent	Present/ Absent	Present/ Absent	Present/ Absent	Present/ Absent	Present/ Absent	Present/ Absent
Glossitis	Present/ Absent	Present/ Absent	Present/ Absent	Present/ Absent	Present/ Absent	Present/ Absent	Present/ Absent
Baldness	Present/ Absent	Present/ Absent	Present/ Absent	Present/ Absent	Present/ Absent	Present/ Absent	Present/ Absent

III.NIRAM: [COMPLEXION]

0th day	8th day	16th day	24th day	32nd day	40th day	48th day
Dark/pale/ Yellow tinted/whitish brown	Dark/pale/ Yellow tinted/whitish brown	Dark/pale/ Yellow tinted/whitish brown	Dark/pale/ Yellow tinted/whitish brown	Dark/pale/ Yellow tinted/whitish brown	Dark/pale/ Yellow tinted/whitish brown	Dark/pale/ Yellow tinted/whitish brown

IV.MOZHI: [VOICE]

0th day	8th day	16th day	24th day	32nd day	40th day	48th day
Medium/High /Low pitched	Medium/High /Low pitched	Medium/High /Low pitched	Medium/High /Low pitched	Medium/High/ Low pitched	Medium/High /Low pitched	Medium/High / Low pitched

V.VIZHI: [EYES] (Lower palpebral conjunctiva)

0th day	8th day	16th day	24th day	32nd day	40th day	48th day
Normal/Red pale/yellow	Normal/Red pale/yellow	Normal/Red pale/yellow	Normal/Red pale/yellow	Normal/Red pale/yellow	Normal/Red pale/yellow	Normal/Red pale/yellow

VI. MALAM: [BOWEL HABITS / STOOLS]

	0th day	8th day	16th day	24th day	32nd day	40th day	48th day
Colour	Dark/pale/ yellow/Red	Dark/pale/ yellow/ Red	Dark/pale/ Yellow/ Red	Dark/pale/ yellow/ Red	Dark/pale/ yellow/ Red	Dark/pale/ yellow/Red	Dark/pale/ yellow/ Red
Consistency	Solid/Semi solid/ Watery	Solid/Semi solid/ Watery	Solid/Semi solid/ Watery	Solid/Semi solid/ Watery	Solid/Semi solid/ Watery	Solid/Semi solid/ Watery	Solid/Semi solid/ Watery
Stool bulk	Normal/ Reduced	Normal/ Reduced	Normal/ Reduced	Normal/ Reduced	Normal/ Reduced	Normal/ Reduced	Normal/ Reduced
Constipation	Present/ Absent	Present/ Absent	Present/ Absent	Present/ Absent	Present/ Absent	Present/ Absent	Present/ Absent
Diarrhea	Present/ Absent	Present/ Absent	Present/ Absent	Present/ Absent	Present/ Absent	Present/Absent	Present/ Absent

VII.MOOTHIRAM: [URINE EXAMINATION]

Neerkkuri	**0th day**	**8th day**	**16th day**	**24th day**	**32nd day**	**40th day**	**48th day**
Niram [Colour]	Yellow/ Red/ White/ Straw coloured/ Crystal clear	Yellow/ Red/ White/ Straw coloured/ Crystal clear	Yellow/Red/ White/Straw coloured/ Crystal clear	Yellow/ Red/ White/Straw coloured/ Crystal clear	Yellow/ Red/ White/ Straw coloured/ Crystal clear	Yellow/ Red/ White/ Straw coloured/ Crystal clear	Yellow/ Red/ White/ Straw coloured/ Crystal clear
Manam [Odour]	Present/ Absent	Present/ Absent	Present/ Absent	Present/ Absent	Present/ Absent	Present/ Absent	Present/ Absent
Nurai [Froth]	Nil/ Reduced/ Increased	Nil/ Reduced/ Increased	Nil/Reduced / Increased	Nil/Reduced / Increased	Nil/ Reduced/ Increased	Nil/ Reduced/ Increased	Nil/ Reduced/ Increased
Edai [Sp. gravity]	Normal/ Increased/ Reduced	Normal/ Increased/ Reduced	Normal/ Increased/ Reduced	Normal/ Increased/ Reduced	Normal/ Increased/ Reduced	Normal/ Increased/ Reduced	Normal/ Increased/ Reduced
Enjal [Deposits]	Present/ Absent	Present/ Absent	Present/ Absent	Present/ Absent	Present/ Absent	Present/ Absent	Present/ Absent
Volume	Normal/ Increasd/ Reduced	Normal/ Increased/ Reduced	Normal/ Increased/ Reduced	Normal/ Increased/ Reduced	Normal/ Increased/ Reduced	Normal/ Increased/ Reduced	Normal/ Increased/ Reduced

Neikkuri	**0th day**	**8th day**	**16th day**	**24th day**	**32nd day**	**40th day**	**48th day**
Serpentine fashion	at__ mins	at__mins	at__mins	at__mins	at__mins	at__mins	at__mins
Annular/Ringed fashion	at__mins	at__ mins	at__mins	at__mins	at__mins	at__mins	at__mins
Pearl beaded fashion	at__ mins	at__mins	at__mins	at__mins	at__ mins	at__mins	at__ mins
Mixed fashion	at__mins	at__mins	at__mins	at__ mins	at__mins	at__mins	at__ mins
Other fashion	at__ mins	at__mins	at__mins	at__mins	at__mins	at__ mins	at__mins

VIII. SPARISAM: [PALPATORY PERCEPTION]

0th day	**8th day**	**16th day**	**24th day**	**32nd day**	**40th day**	**48th day**
Warmth/Hot/ cold/ Sweat	Warmth/Hot/ cold/ Sweat	Warmth/Hot/ cold/ Sweat	Warmth/Hot/ cold/ Sweat	Warmth/Hot/ cold/ Sweat	Warmth/Hot/ cold/ Sweat	Warmth/Hot/ cold/ Sweat

THEGI: [TYPE OF BODY CONSTITUTION]

Vatham predominant		Kabam predominant	
Pitham predominant		Thondha udal	

NILAM: [LAND WHERE PATIENT LIVED MOST]

Kurinji ☐ Mullai ☐ Marutham ☐ Neithal ☐ Palai ☐

(Hilly terrain) (Forest range) (Plains) (Coastal belt) (Arid regions)

KAALAM: Kaarkalam ☐ Koothirkalam ☐ Munpanikalam ☐

Pinpanikalam ☐ Ilavenil ☐ Mudhuvenil ☐

GUNAM: Thamasam ☐ Sathuvam ☐ Rasatham ☐

IYMPORIGAL: [SENSORY ORGANS]

	0th day	**8th day**	**16th day**	**24th day**	**32nd day**	**40th day**	**48th day**
	Normal/ Affected	Normal/ Affected	Normal/ Affected	Normal/ Affected	Normal/ Affected	Normal/ Affected	Normal/ Affected
Mei [Skin]							
Vaai(Buccal cavity)							
Kan (Eyes)							
Mooku (Nose)							
Sevi [ear]							

IYMPULANGAL: [MOTOR ORGANS]

	0th day	**8th day**	**16th day**	**24th day**	**32nd day**	**40th day**	**48th day**
	Normal/ Affected	Normal/ Affected	Normal/ Affected	Normal/ Affected	Normal/ Affected	Normal/ Affected	Normal/ Affected
Kai (Upperlimb)							
Kal (Lowerlimb)							
Vai[Buccal cavity]							
Eruvai [excretoryorgan]							
Karuvai [Reproductiveorgan]							

KOSAM:[SHEATHS]

	0th day	**8th day**	**16th day**	**24th day**	**32nd day**	**40th day**	**48th day**
	Normal/ Affected	Normal/ Affected	Normal/ Affected	Normal/ Affected	Normal/ Affected	Normal/ Affected	Normal/ Affected
Annamaya kosam							
PranamayaKosam							
Manonmayakosam							
Vinanamaya kosam							
Ananthamaya kosam							

A) VATHAM:

	0th day	**8th day**	**16th day**	**24th day**	**32nd day**	**40th day**	**48th day**
	Normal/ Affected	Normal/ Affected	Normal/ Affected	Normal/ Affected	Normal/ Affected	Normal/ Affected	Normal/ Affected
Praanan							
Abaanan							
Samaanan							
Udhaanan							
Viyaanan							
Naahan							
Koorman							
Kirukaran							
Devathathan							
Dhananjeyan							

B) PITHAM:

	0th day	**8th day**	**16th day**	**24th day**	**32nd day**	**40th day**	**48th day**
	Normal/ Affected	Normal/ Affected	Normal/ Affected	Normal/ Affected	Normal/ Affected	Normal/ Affected	Normal/ Affected
Analapithm							
Prasakam							
Ranjakam							
Aalosakam							
Saathakam							

C) KABAM:

	0th day	**8th day**	**16th day**	**24th day**	**32nd day**	**40th day**	**48th day**
	Normal/ Affected	Normal/ Affected	Normal/ Affected	Normal/ Affected	Normal/ Affected	Normal/ Affected	Normal/ Affected
Avalambagam							
Kilethagam							
Pothagam							
Tharpagam							
Santhigam							

SEVEN DHATHUS: [SEVEN SOMATIC COMPONENTS]

	0th day	**8th day**	**16th day**	**24th day**	**32nd day**	**40th day**	**48th day**
	Normal/ Affected	Normal/ Affected	Normal/ Affected	Normal/ Affected	Normal/ Affected	Normal/ Affected	Normal/ Affected
Saaram [chyme]							
Senneer [Blood]							
Oon [Muscle]							
Kozhuppu [Fat]							
Enbu [Bones]							
Moolai [Bone marrow]							
Sukkilam/ Suronitham [Genital discharges]							

SYSTEMIC EXAMINATION:

	0th day	8th day	16th day	24th day	32nd day	40th day	48th day
Cardiovascular System							
Respiratory System							
Gastrointestinal System							
Central Nervous System							
Endocrine System							

GENERAL EXAMINATION:

	0th day	8th day	16th day	24th day	32nd day	40th day	48th day
Height (cms)							
Weight (kg)							
Temperature(°F)							
Pulse rate (per min)							
Heart rate (per min)							
Respiratory rate (per min)							
Blood pressure (mm/Hg)							
Pallor							
Jaundice							
Cyanosis							
Lymphadenopathy							
Pedal edema							
Clubbing							
Jugular vein pulsation							

SYSTEMIC EXAMINATION: RESPIRATORY SYSTEM

I.INSPECTION:

	0^{th} day	48^{th} day
Trachea		
Drooping of shoulder		
Form of chest		
Apical impulse		
Intercostal Muscle Wasting		
Intercostal bulging		
Respiratory movement		
Measurements: AP - Transverse -		

II. PALPATION:

	0^{th} day	48^{th} day
Tracheal position (trial's sign)		
Apical impulse		
Respiratory Movements		
Tactile vocal fremitus		

III. PERCUSSION:

	0^{th} day	48^{th} day
Normal /Dullness/ hyper-resonance		

IV. AUSCULTATION:

	0^{th} day	48^{th} day
Character of Breath Sound		
Foreign Sounds		
Vocal Resonance		

V. SPUTUM:

	0th day	8th day	16th day	24th day	32nd day	40th day	48th day
Colour	White/ Green/ Yellow/red	White/ Green / Yellow/red	White/ Green/ Yellow/Red	White/ Green / Yellow/red	White/ Green / Yellow/red	White/ Green/ Yellow/red	White/ Green/ Yellow/red
Amount	Less/More	Less/more	Less/More	Less/More	Less/More	Less/More	Less/More
Consistency	Mucoid/ Purulent /Frothy	Mucoid/ Purulent /Frothy	Mucoid/ Purulent/ Frothy	Mucoid/ Purulent/ Frothy	Mucoid/ Purulent/ Frothy	Mucoid/ Purulent/ Frothy	Mucoid/ Purulent /Frothy
Odour	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No

OTHER SYSTEMIC EXAMINATIONS:

	0th day	8th day	16th day	24th day	32nd day	40th day	48th day
Cardio vascular system							
Alimentary system							
Central Nervous system							
Loco motor system							
Genito-Urinary system							
Endocrine system							

CLINICAL SYMPTOMS:

	0th day	8th day	16th day	24th day	32nd day	40th day	48th day
Difficulty in breathing							
Tightness of chest							
Wheeze - Added sound (Rhonchi)							
Dry (or) productive cough							
Sneezing							
Hoarseness of voice							
Sleep disturbance							
Nocturnal wheezing							
Associated symptoms							

Date:

Station: **Signature of the Investigator:**

Signature of the Lecturer:

Signature of the HOD:

NATIONAL INSTITUTE OF SIDDHA, CHENNAI- 47
AYOTHIDASS PANDITHAR HOSPITAL,
DEPARTMENT OF MARUTHUVAM,
AN OPEN CLINICAL STUDY ON SWASA KASAM (BRONCHIAL ASTHMA)
AND THE DRUG OF CHOICE IS "MANTHARAKASA LEHIYUM" (INTERNAL)
FORM III - LABORATORY PARAMETERS-CHART

1. O.P NO _____ 2. IP.NO: _____ 3. S. NO _____ 4. LAB.NO_____

4. NAME_____ **5.AGE ____. 6. GENDER:** Male/Female

BLOOD INVESTIGATION		BEFORE TMT Date:	AFTER TMT Date:	NORMAL VALUES
HBV (gms %)				Men- 12.0-17.0; Women – 11.0-16
T.RBC(milli/cu.mm)				Men-4.4-5.7; Women-3.8-5.0
ESR (mm)	½ hr.			Men-1-13 ; Women-1-20
	1 hr.			
T.WBC (cu.mm)				Men:4000-11000; Women:4000-11000
DIFFERENTIAL COUNT (%)	Polymorphs			40-75%
	Lymphocytes			20-40%
	Monocytes			2-10%
	Eosinophils			1-6%
	Basophils			0-1%
Blood glucose (mg/dl)	Fasting			70-110 mg/dl
	PP			80-140 mg/dl
	Random			80-120 mg/dl
Lipid profile (mg/dl)	Serum cholesterol			150-225 mg/dl
	HDL			30-63 mg/dl
	LDL			< 130 mg/dl
	VLDL			< 40 mg/dl
	TGL			<160 mg/dl
RFT (mg/dl)	Blood Urea			16-50 mg/dl
	Serum Creatinine			0.6-1.2 mg/dl
	Uric acid			Men-3-9 mg/dl; Women-2.5-7.5 mg/dl
LFT (mg/dl)	Total bilirubin			0.2-1.2
	Direct bilirubin			0.1-0-4
	Indirect bilirubin			0.2-0.7
	SGOT (IU/L)			0-40
	SGPT (IU/L)			0-35
	Alkaline phosphatase(IU/L)			80-290 (IU/L)
Serum total protein				6-8
Serum Albumin				3.5-5.0
Serum globulin				2.3-3.5
Serum calcium				8.5-10.5
Serum phosphorous				3.0-4.5
Peak Expiratory Flow Rate (Lit / min)				Male : Adult 400-650: above 40yr 300-500 Female : Adult 250-450: above 40yr 200-400

Urine investigation	Before TMT Date:	After TMT Date:
Neer Kuri		
Niram		
Manam		
Nurai		
Edai		
Enjai		
Neikuri		
Albumin		
Fasting sugar		
PP sugar		
Random Sugar		
Deposits		
Bile salt		
Bile pigments		
Urobilinogen		
MOTION TEST	Before TMT Date:	After TMT Date:
Ova		
Cyst		
Occult blood		

AFB:

Radiological investigation- Chest X-ray PA View:

ECG: **Signature of the Investigator:**

Date: **Signature of the Lecture:**

Station: **Signature of the HOD:**

தேசிய சித்த மருத்துவ நிறுவனம்,

அயோத்திதாஸர் பண்டிதர் மருத்துவமனை,சென்னை-47,

பட்டமேற்படிப்பு மருத்துவத்துறை.

IV - ஒப்புதல் படிவம்

ஆய்வாளரால் சான்றளிக்கப்பட்டது

நான் இந்த ஆய்வை குறித்த அனைத்து விபரங்களையும் நோயாளிக்கு புரியும் வகையில் எடுத்துரைத்தேன் என உறுதியளிக்கிறேன்.

தேதி : **கையொப்பம்:**

இடம்: **பெயர் :**

நோயாளியின் ஒப்புதல்

என்னிடம் இந்த மருத்துவ ஆய்வின் காரணத்தையும், மருந்தின் தன்மை மற்றும் மருத்துவ வழிமுறைப் பற்றியும், தொடர்ந்து எனது உடல் இயக்கத்தை கண்காணிக்கவும், அதனை பாதுகாக்கவும் பயன்படும் மருத்துவ ஆய்வுக்கூட பரிசோதனைகள் பற்றி திருப்தி அளிக்கும் வகையில் ஆய்வு மருத்துவரால் விள்க்கிக் கூறப்பட்டது.

நான் இந்த மருத்துவ ஆய்வின் போது, காரணம் எதுவும் கூறாமல், எப்பொழுது வேண்டுமானாலும் இந்த ஆய்விலிருந்து என்னை விடுவித்து கொள்ளும் உரிமையை தெரிந்திருக்கின்றேன்.

நான் என்னுடைய சுதந்திரமாக தேர்வு செய்யும் உரிமையைக் கொண்டு **சுவாச காசம்** நோய்க்கான **மந்தார காச லேகியம்** மருந்தின் பரிகரிப்புத் திறனைக் கண்டறியும் மருத்துவ ஆய்விற்கு என்னை உட்படுத்த ஒப்புதல் அளிக்கிறேன்.

தேதி: **கையொப்பம்:**

இடம்: **பெயர் :**

தேதி: **சாட்சிக்காரர் கையொப்பம்:**

இடம்: **பெயர் :**

NATIONAL INSTITUTE OF SIDDHA, CHENNAI -47

AYOTHIDASS PANDITHAR HOSPITAL

DEPARTMENT OF MARUTHUVAM

AN OPEN CLINICAL STUDY ON SWASA KASAM (BRONCHIAL ASTHMA) AND DRUG OF CHOICE IS "MANTHARA KASA LEHIYUM" (INTERNAL).

FORM IV – INFORMED CONSENT FORM

Certificate by Investigator

I certify that I have disclosed all details about the study in the terms readily understood by the patient.

Date: Signature:

Name:

Consent by Patient

I have been informed to my satisfaction, by the attending physician, the purpose of the clinical trial, and the nature of drug treatment and follow-up including the laboratory investigations to be performed to monitor and safeguard my body functions.

I am aware of my right to opt out of the trial at any time during the course of the trial without having to give the reasons for doing so.

I, exercising my free power of choice, hereby give my consent to be included .As a subject in the clinical trial of **Manthara kasa lehiyum** for the management of **Swasakasam** (Bronchial Asthma)

Date: Patient Signature:

Patient Name:

Date: Signature of Witness:

Name:

Relationship:

தேசிய சித்த மருத்துவ நிறுவனம், சென்னை 47

அயோத்திதாசர் பண்டிதர் மருத்துவமனை

சுவாசகாசம் நோய்க்கான சித்த மருந்தின் (மந்தார காச லேகியம்) பரிகரிப்புத் திறனைக் கண்டறியும் மருத்துவ ஆய்விற்கான தகவல் படிவம்.

FORM IVA தகவல் படிவம்

முதன்மை ஆராய்ச்சியாளர் பெயர் : Dr. ப.முத்துசெல்வி

நிறுவனத்தின் பெயர் : தேசிய சித்த மருத்துவ நிறுவனம்

தாம்பரம் சானட்டோரியம், சென்னை 47

Dr. ப.முத்துசெல்வி ஆகிய நான் தேசிய சித்த மருத்துவமனையில் பட்ட மேற்படிப்பு பயின்று வருகிறேன். **சுவாசகாசம்** என்னும் நோயானது மூக்கில் வெளியாகும் காற்று அனல் வீசுவது போலத் தோன்றி, தொண்டை கட்டி,மூச்சு,மார்பில் கோழைகட்டி இருமலெழும் நோய். இந்நோய்க்கு தேசிய சித்த மருத்துவமனையில் பல சித்த மருந்துகள் பயன்படுத்தப்பட்டு வருகின்றது. சித்த மருத்துவ பட்ட மேற்படிப்பில், ஆய்வின் ஒரு பகுதியாக புதிய மருந்துகளை பயன்படுத்தும் நோக்கில் இந்நோய்க்கு **மந்தார காச லேகியம்** வழங்க பரிந்துரை செய்கிறோம். இந்த மருந்தின் செய்முறை, அளவு, அனுபானம் மற்றும் மருத்துவ பயன்கள் அனைத்தும் அங்கீகரிக்கப்பட்ட சித்த மருத்துவ நூலில் கூறப்பட்டுள்ளது. எந்தவித கட்டணமுமின்றி தாங்கள் இந்த மருந்தினை பெற்றுக்கொள்ளலாம். இந்த ஆய்வில் மருந்து உட்கொள்ளும் காலம் **48நாட்கள்** ஆகும். வாரம் ஒருமுறை தேசிய சித்த மருத்துவமனைக்கு நேரில் வந்து 8நாட்களுக்கான மருந்தினை பெற்றுக்கொள்ள வேண்டும். இந்த ஆய்வு சம்பந்தமான ஆய்வக பரிசோதனைகள் கட்டணமின்றி செய்யப்படும். 48 நாட்கள் மருந்து உட்கொள்ளும் காலம் முடிந்த பிறகு நோய்க்கான குறிகுணங்கள் மற்றும் ஆய்வக பரிசோதனைகள் இவற்றின் முடிவுகளின் அடிப்படையில் மருந்தின் பரிகரிப்புத்திறன் கண்டறியப்படும்.

இந்த ஆய்வு சம்பந்தமாக சில கேள்விகளை தங்களிடம் கேட்க இருக்கிறேன். தங்களிடமிருந்து பெறப்படும் கருத்துக்கள் மற்றும் குறிப்புகள் அனைத்தும் நம்பிக்கையாக பதிவு செய்யப்படும்.இந்த ஆய்வில் தங்களை உட்படுத்திக்கொள்வதின் மூலம் எந்த வகையிலும் பாதிப்புக்குள்ளாக மாட்டீர்கள் என உறுதி அளிக்கிறேன்.

எந்தவித வற்புறுத்தலுமின்றி, இந்த ஆய்வில் பங்கேற்கவும், இந்த ஆய்வு சம்பந்தமாக கேட்கப்படும் கேள்விகளுக்கு பதில் கூறவும் தங்களுக்கு முழு சுதந்திரம் அளிக்கப்படுகிறது. இந்த ஆய்வில் பங்கேற்பதற்கு எந்த சன்மானமும் வழங்கப்படமாட்டாது. ஆனால், ஆய்வு முழுவதும் எனது மேற்பார்வையிலும், தங்கள் உடல்நலன் குறித்த தனி கவனத்திலும் ஆய்வு மேற்கொள்ளப்படும்.**சுவாசகாசம்** நோய்க்கான புதிய மருந்தின் பரிகரிப்புத்திறனை சமூகத்திற்கு உணர்த்தும் வகையில் இந்த ஆய்வு மேற்கொள்ளப்படுகிறது. இந்த ஆய்வில், மருந்து உட்கொள்ளும் காலத்தில் சிலருக்கு மாறுபட்ட குறிகுணங்கள் தொடர்ந்து இருக்கும் பட்சத்தில், முதன்மை ஆராய்ச்சியாளரான என்னிடம் தெரிவிக்கப்பட்டு, தேசிய சித்த மருத்துவமனையில் அதற்க்கான தீர்வு வழங்கப்படும். இந்த ஆய்வினைத் தொடர தங்களுக்கு விருப்பம் இல்லையெனில், எப்பொழுது வேண்டுமானலும் ஆய்வின் இடையில் விலகிக்கொள்ளவும், மருத்துவமனையில் வழங்கப்படும் இந்நோய்க்கான வழக்கமான மருந்துகளை பெற்றுக்கொள்ளவும் அறிவுறுத்தப்படுகிறீர்கள்.

இந்த ஆய்வில் சேகரிக்கப்படும் விபரங்கள் அனைத்தும் தங்களுக்கும் முதன்மை ஆராய்ச்சியாளரான எனக்கும் இடையில் இரகசியமாக வைக்கப்படும். கேள்வி பதில் வடிவத்தில் தங்களிடம் கேள்விகள் கேட்கப்படும். அனைத்துப் படிவங்களிலும் தங்களின் பெயர் தவிர்க்கப்பட்டு ஆய்வாளரால் தங்களுக்கென தனிக் குறியீடு வழங்கப்படும். அந்தக் குறியீடு ஆய்வாளருக்கு மட்டுமே தெரிந்ததாக இருக்கும். நீங்கள் இந்த ஆய்வில் பங்கேற்க விருப்பப்பட்டால், திட்ட வரைவு படி தேர்வு செய்யப்படுவீர்கள்.

நீங்கள் இந்த ஆய்வில் பங்கேற்கும் முன், இந்த ஆய்வினைப் பற்றிய மேலும் விபரங்கள் பெற வேண்டுமென விருப்பப்பட்டால், இந்த ஆய்வின் முதன்மை ஆராய்ச்சியாளர் மற்றும் தேசிய சித்த மருத்துவமனை, பட்ட மேற்படிப்புத்துறை மாணவர் Dr. ப.முத்துசெல்வி ஆகிய என்னை 8220329060 என்ற எண்ணில் தொடர்பு கொள்ளலாம். மேலும், நீங்கள் இந்த ஆய்வில், உங்களது பங்கேற்பு மற்றும் உரிமை பற்றி தெரிந்து கொள்ள தேசிய சித்த மருத்துவமனை, தலைவர்/செயற்க்குழு உறுப்பினர் அவர்களையும் 91-44-22411611 என்ற எண்ணில் தொடர்பு கொள்ளலாம்.

NATIONAL INSTITUTE OF SIDDHA, CHENNAI – 47

AYOTHIDASAR PANDITHAR HOSPITAL

DEPARTMENT OF MARUTHUVAM

AN OPEN CLINICAL STUDY ON "SWASAKASAM" (BRONICAL ASTHMA) AND THE DRUG OF CHOICE IS "MANTHARAKASA LEHIYUM" (INTERNAL)

FORM IV A – INFORMATION SHEET

Name of the Principal Investigator: Dr.P.MUTHUSELVI

Name of the Institution : National Institute of Siddha

Tambaram Sanatorium, Chennai- 47.

- I am, **Dr.P.Muthuselvi** studying M.D(S) in National Institute of Siddha, Chennai. Bronchial asthma is the common chronic inflammatory disease of the airway characterized by variable and recurring symptoms of wheezing, coughing, chest tightness and shortness of breath. This condition is being treated is NIS with many siddha formulations. As a part of M.D(S) research programme and developing new efficacious medicine, we propose to study the **MANTHARA KASA LEHIYUM** formulation for treating the condition. This formulation has been mentioned in siddha literature and empirical evidence with contemporary tools is required for documentation. You can receive medicines free of cost. The duration of treatment period is 48days. You have to visit NIS every week and collect drugs for 8 days. The diagnosis tests will be carried out free of cost. We will assess the effect of treatment after completion of 48days of treatment using clinical and lab parameters.
- In this regard, we need to ask you few questions. We will maintain confidentiality of your comments and data obtained from you. There will be no risk of disclosing your identity and no physical, psychological or professional risk is involved by taking part in this study.
- Taking part in this study is voluntary. No compensation will be paid to you for taking part in this study. You can choose not to answer any specific question. There is no specific benefit for you if you take part in the study, but you will be under our clinical monitoring and specific attention will be given for your health. Taking part in the study may be of benefit to the community, as it may help us to develop medicine for swasakasam. In case of any adverse symptoms during the treatment which is expected for few patients during the treatment, shall be reported to PIs and care will be taken in NIS for relief. You can withdraw from the study at the midst of treatment period, if you are not interested to continue and you will receive our usual treatment without condition.
- The information we will collect in this study, will remain between you and the principal investigator. We will ask you a few questions through questionnaire. We will not write your name on different forms which sent to different investigating/analysis sections and we will use a code instead given by the principal investigator. Only the principal investigator will know the key to this code which will be kept in safe custody. If you agree to be a participant in this study, you will be screened as per the study protocol.
- If you wish to find out more about this study before taking part, you can ask me all the questions you want or contact Dr.P.Muthuselvi, M.D(S) scholar cum principal investigator of

this study, attached to the National Institute of Siddha, Chennai (Mobile phone no:8220329060) You can also contact the Chairman/Member-secretary of Ethics committee, National Institute of Siddha, Chennai – 600047, Tel no: 91-44-22411611, for rights and participation in the study.

NATIONAL INSTITUTE OF SIDDHA, CHENNAI- 47
AYOTHIDASS PANDITHAR HOSPITAL,
DEPARTMENT OF MARUTHUVAM,
AN OPEN CLINICAL STUDY ON SWASA KASAM (BRONCHIAL ASTHMA)
AND THE DRUG OF CHOICE IS "MANTHARAKASA LEHIYUM" (INTERNAL)
FORM IV B – DRUG COMPLIANCE FORM

1. O.P NO _____ **.2. IP.NO**: _____**3. S. NO** _____

4. NAME_____**.5.AGE** ____ **.6. GENDER:** Male/Female

Name of the Drug:, **MANTHARA KASA LEHIYUM** (Internal),

On 0th day –Date ;Drug issued: (Nos) / Drug returned: (Nos)
On 8th day-Date: ;Drug issued: (Nos) / Drug returned: (Nos)
On 16th day -Date: ;Drug issued: (Nos) / Drug returned: (Nos)
On 24th day-Date: ;Drug issued: (Nos) / Drug returned: (Nos)
On 32nd day-Date: ;Drug issued: (Nos) / Drug returned: (Nos)
On 40th day-Date: ;Drug issued: (Nos) / Drug returned: (Nos)
On 48th day-Date: ;Drug issued: (Nos) / Drug returned: (Nos)

Day	Date	Morning	Evening
Day 1			
Day 2			
Day 3			
Day 4			
Day 5			
Day 6			
Day 7			
Day 8			
Day 9			
Day 10			
Day 11			
Day 12			
Day 13			
Day 14			
Day 15			
Day 16			
Day 17			
Day 18			
Day 19			
Day 20			
Day 21			
Day 22			
Day 23			
Day 24			
Day 25			
Day 26			
Day 27			

Day 28			
Day 29			
Day 30			
Day 31			
Day 32			
Day 33			
Day 34			
Day 35			
Day 36			
Day 37			
Day 38			
Day 39			
Day 40			
Day 41			
Day 42			
Day 43			
Day 44			
Day 45			
Day 46			
Day 47			
Day 48			

Date:

Station:

Signature of the Investigator:

Signature of the Lecturer:

Signature of the HOD:

தேசிய சித்த மருத்துவ நிறுவனம்

அயோத்திதாச பண்டிதர் மருத்துவமனை

சுவாசகாசம் நோய்க்கான உணவு முறைகளும் செய்கைகளும்

சேர்க்க தகுந்தவை :

1. ஆவியில் வேகவைத்த பண்டங்கள் இட்லி, இடியாப்பம், பிட்டு, ஆப்பம்.
2. முசுமுசுக்கை அடை, கல்யாணமுருங்கை அடை, தூதுவளை அடை
3. மஞ்சள் / மிளகுதூள் கலந்த பால்
4. சுக்கு / இஞ்சி சேர்ந்த காபி
5. நண்டு சூப், மிளகு ரசம், ஆட்டுகால் சூப்,
6. கத்தரிபிஞ்சு, முருங்கைக்காய், கருணை, சுண்டை வற்றல், மணத்தக்காளி.
7. கொதிக்க வைத்தாறிய நீரை பருக வேண்டும்.

சேர்க்க கூடாதவை :

1. குளிர்ச்சியான உணவு வகைகளான குளிர்பானங்கள், சாக்லெட், பேக்கரி உணவுகள், பதப்படுத்தப்பட்ட உணவுகள், எண்ணெய் பதார்த்தங்கள், கிழங்கு வகைகள்
2. கொதிக்க வைத்தாறிய நீரை பருக வேண்டும்.
3. தயிர், மோர், நெய், பாலாடை, வெண்ணெய்.
4. கருவாடு, மாட்டிறைச்சி, கோழிக்கறி.
5. இனிப்பு, புளிப்பு சேர்ந்த உணவுகள்
6. ஒவ்வாத உணவுகள், நீர் காய்றிகள், நீர் பழங்கள், பழைய உணவுகள், எளிதில் செரிக்காத உணவுகள்

செய்ய கூடாதவை :

1. புகைபிடித்தல், புகையிலை நீக்கவும்
2. குளிர்ந்த காற்றில், பனியில் ஈடுபடுதல் தவிர்க்கவும்
3. தூசு, குப்பை நிறைந்த இடத்தில் இருப்பதை தவிர்க்கவும்
4. கவலைகோபம் குறைக்கவும்
5. பிரணாயாமம் செய்தல் நல்லது
6. இரவு 7 மணிக்குள் சாப்பிட வேண்டும்
7. இரவில் வயிறு முழுமையாக சாப்பிடுவதை தவிர்க்கவும்
8. சூடான உணவுகளை உண்ணவும்

NATIONAL INSTITUTE OF SIDDHA

AYOTHIDASS PANDITHAR HOSPITAL

DIET FOR SWASA KASAM (BRONCHIAL ASTHMA)

1.Do's

1. Steamed food like idly, Idiyappam, Puttu.
2. Mussumusukai adai, Kalyana murungai adai, Thoothuvalai adai.
3. Turmeric / Pepper mixed milk
4. Ginger / Dry ginger mixed coffee.
5. Crab soup, Vegetable soup, Pepper rasam, Mutton leg soup.
6. Drumstic, Yam, Brinjal, Manathakkali(Greens), Sundaivatral.
7. Take well boiled water to drink.

2. Don't

1. Avoid cooldrinks, Chocolate, Cake
2. Oily substance
3. Curd, Ghee, Butter, Cheese
4. Dry fish, Chicken, Beaf,
5. Sweets, Sour food
6. Tuberous food
7. Tined food, Preservative food, Refrigerated foods.
8. Allergen food
9. Vegetables like Cucumber, Snake guard etc..
10. Citrus fruits

3.General advise

1. Avoid Smoking, Tobacco, Alcohol,
2. Avoid Cold weather
3. Avoid Pollutated area, Dust
4. Avoid Stress, Emotion.
5. Do pranayamam
6. Have your night food before 7'o clock,
7. Avoid overeating in night.
8. Have a bath in hot water

NATIONAL INSTITUTE OF SIDDHA
AYOTHIDOSS PANDITHAR HOSPITAL, CHENNAI – 600 047.

DEPARTMENT OF MARUTHUVAM

An open clinical trial to evaluate the Therapeutic Efficacy of Siddha Herbal formulation **MANTHARA KASA LEHIYUM** (Internal) in the management of **SWASA KASAM (BRONCHIAL ASTHMA)**

Name of Principal Investigator: **Reg. No :**

FORM - WITHDRAWAL FORM

1. SERIAL NO OF THE CASE: ……

2. OP / IP NO: **.....**

3. NAME: ……

4.AGE: ……

5.GENDER:**.....**

6. DATE OF TRIAL COMMENCEMENT: ……...

7. DATE OF WITHDRAWAL FROM TRIAL: ……..

8. REASONS FOR WITHDRAWAL:

Long absence at reporting:	Yes/ No
Irregular treatment:	Yes/ No
Shift of locality:	Yes/No
Increase in severity of symptoms:	Yes/No
Development of severe adverse drug reactions:	Yes/No
Development of adverse event:	Yes/No

Date:

Station:

Signature of the Investigator:

Signature of the Lecturer:

Signature of the HOD:

NATIONAL INSTITUTE OF SIDDHA

AYOTHIDOSS PANDITHAR HOSPITAL, CHENNAI – 600 047.

DEPARTMENT OF MARUTHUVAM

An open clinical trial to evaluate the Therapeutic Efficacy of Siddha Herbal formulation **MANTHARA KASA LEHIYUM** (Internal) in the management of **SWASA KASAM (BRONCHIAL ASTHMA)**

Name of Principal Investigator: Reg. No:

FORM –ADVERSE REACTION FORM

SERIAL NO:

OP/IP NO:

NAME: AGE: GENDER:

DATE OF TRIAL COMMENCEMENT:

DATE OF THE ADVERSE REACTION OCCUR:

DESCRIPTION OF ADVERSE REACTION:

Date:

Station:

Signature of the Investigator:

Signature of the Lecturer:

Signature of the HOD:

NATIONAL PHARMACOVIGILANCE PROGRAMME FOR SIDDHA DRUGS

Reporting Form for Suspected Adverse Reactions to Siddha Drugs

Please note: i. All consumers / patients and reporters information will remain confidential.
ii. It is requested to report all suspected reactions to the concerned, even if it does not have complete data, as soon as possible.

Peripheral Center code: State:

1. Patient / consumer identification (please complete or tick boxes below as appropriate)

<table>
<tr><td>Name</td><td>Father name</td><td rowspan="2">Patient / Record No.</td></tr>
<tr><td>Ethnicity</td><td>Occupation</td></tr>
<tr><td colspan="2" rowspan="2">Address
Village / Town
Post / Via
District / State</td><td>Date of Birth / Age:</td></tr>
<tr><td>Sex: Male / Female
Weight :
Degam:</td></tr>
</table>

2. Description of the suspected Adverse Reactions (please complete boxes below)

Date and time of initial observation		Season:
Description of reaction		Geographical area:

3. List of all medicines / Formulations including drugs of other systems used by the patient during the reporting period:

Medicine	**Daily dose**	**Route of administration & Vehicle – Adjuvant**	**Date**		**Diagnosis for which medicine taken**
			Starting	**Stopped**	
Siddha					
Any other system of medicines					

4. Brief details of the Siddha Medicine which seems to be toxic:

Details	Drug – 1	Drug – 2	Drug - 3
a) Name of the medicine			
b) Manufacturing unit and batch No. and date			
c) Expiry date			
d) Purchased and obtained from			
e) Composition of the formulation / Part of the drug used			

b) Dietary Restrictions if any

c) Whether the drug is consumed under institutionally qualified medical supervision or used as self medication.

d) Any other relevant information.

5. Treatment provided for adverse reaction:

6. The result of the adverse reaction / side effect / untoward effects (please complete the boxes below)

Recovered:	Not recovered:	Unknown:	Fatal:	If Fatal Date of death:

Severe: Yes / No.	Reaction abated after drug stopped or dose reduced:
	Reaction reappeared after re introduction:

Was the patient admitted to hospital? If yes, give name and address of hospital	

7. Any laboratory investigations done to evaluate other possibilities? If yes specify:

8. Whether the patient is suffering with any chronic disorders?

Hepatic Renal Cardiac Diabetes Malnutrition

Any Others

9. H/O previous allergies / Drug reactions:

10. Other illness (please describe):

11. Identification of the reporter:

Type (please tick): Nurse / Doctor / Pharmacist / Health worker / Patient / Attendant / Manufacturer /Distributor / Supplier / Any others (please specify)
Name:
Address:
Telephone / E – mail if any :

Signature of the reporter: Date:

Please send the completed form to:

Name & address of the RRC-ASU / PPC-ASU

The Director

National Institute of Siddha,

(Pharmacovigilance Regional Centre For Siddha

Tambaram Sanatorium, Chennai-600 047.

☏ (O) 044-22381314 Fax : 044 – 22381314

Website : www.nischennai.org

Email: nischennaisiddha@yahoo.co.in

This filled-in ADR report may be sent within one month of observation /occurrence of ADR

Who Can Report? =Any Health care professionals like Siddha Doctors / Nurses / Siddha Pharmacists / Patients etc.

What to Report? =All reactions, Drug interactions,

Confidentiality =The patient's identity will be held in strict confidence and protected to the fullest extent.

=Submission of report will be taken up for remedial measures only not for legal claim

Station: Signature of the Investigator:

Date: Signature of the Lecturer:

Signature of the HOD:

CERTIFICATES

The Tamil Nadu Dr.M.G.R. Medical University

#69, Anna salai, Guindy, Chennai-600 032.

This certificate is awarded to

Dr./~~Mr.~~/~~Ms.~~ P. MUTHUSELVI

for participating as ~~Resource~~ ~~Person~~ / Delegate in the Fourteenth Workshop on

"Research Methodology & Biostatistics"

for AYUSH Post Graduates & Researchers

Organised by the Department of Siddha

The Tamil Nadu Dr. M.G.R. Medical University from 5th to 9th May 2014.

Dr. N. KABILAN M.D. (Siddha)
Reader, Dept. of Siddha

Dr. JHANSI CHARLES, M.D.
Registrar

Prof. Dr. D. SHANTHARAM, M.D., D.Diab.,
Vice-Chancellor

NATIONAL INSTITUTE OF SIDDHA
राष्ट्रीय सिद्ध संस्थान

Department of AYUSH- MINISTRY OF HEALTH & FAMILY WELFARE
आयुष विभाग - स्वास्थ एवं परिवार कल्याण मंत्रालय
GOVERNMENT OF INDIA-भारत सरकार

TAMBARAM SANATORIUM, CHENNAI -600 047 -ताम्बरम सनटोरियम चेन्नई -600 047
फ़ोन\Tele : 044-22411611 फैक्स\Fax : 22381314
ईमेल: nischennaisiddha@yahoo.co.in वेब :www.nischennai.org

F.No.NIS/6-20/IEC/14-15 Dt: 25.09.14

CERTIFICATE

Address of Ethics Committee: National Institute of Siddha, Tambaram Sanatorium, Chennai-600047, Tamil Nadu, India	
Principal Investigator: Dr.P.Muthuselvi, P.G. Student, Maruthuvam	
Protocol title: Clinical evaluation of Siddha drug Mantharakasa lehiyum (Int) in the treatment of swasakasam (Bronchial asthma)	
Documents filed	1) Protocol, 2) Data Collection forms 3) Patient Information Sheet 4) Consent form 5) SAE(Pharmacovigilance)
Clinical trial Protocol (others – Specify)	**Yes**
Informed consent documents	**Yes**
Any other documents	-
Date of IEC approval & its number	**NIS/IEC/8-14/1 - 26-08-2014**

We approve the trial to be conducted in its presented form.

The Institutional Ethics Committee expects to be informed about the progress of the study, any SAE occurring in the course of the study, any changes in the protocol and patient information / informed consent.

Chairman

Member Secretary

NATIONAL INSTITUTE OF SIDDHA CHENNAI 600 047

NATIONAL INSTITUTE OF SIDDHA, CHENNAI – 600047

BOTANICAL CERTIFICATE

Certified that the following plant drugs used in the Siddha formulation "**Mantharakasa Lehiyum"** (Internal) for the treatment of **Swasa kasam** (Bronchial Asthma) taken up for Post Graduation Dissertation studies by **Dr.P.Muthuselvi**, M.D.(S), II year, Department of Maruthuvam, 2015, are identified through Visual inspection, Experience, Education & Training, Organoleptic characters, Morphology, Micromorphology and Taxonomical methods as

Solanum surattense Burm.f. (Solanaceae), Whole plant
Solanum trilobatum Linn. (Solanaceae), Whole plant
Justicia adhatoda Linn. (Acanthaceae), Leaves
Alpinia officinarum Hance (Zingiberaceae), Rhizome
Zingiber officinale Rosc. (Zingiberaceae), Rhizome
Piper nigrum Linn. (Piperaceae), Fruit
Piper longum Linn. (Piperaceae), Fruit

Certificate No: NISMB1952015

Date: 9-9-2015

Authorized Signatory

Dr. D. ARAVIND, M.D.(s),M.Sc.,
Assistant Professor
Department of Medicinal Botany
National Institute of Siddha
Chennai - 600 047. INDIA

சித்த மருத்துவ மைய அராய்ச்சி நிலையம், சென்னை — 600 106
सिद्ध केंद्रीय अनुसन्धान संस्थान, अण्णा सरकारी अस्पताल परिसर, अरुम्बाक्कम, चेन्नई - 600106

SIDDHA CENTRAL RESEACH INSTITUTE

(Central Council for Research in Siddha, Ministry of AYUSH, Govt. of India)
Anna Govt. Hospital Campus, Arumbakkam, Chennai – 600106
Phone: 044-2621 4925, Fax: 044-2621 4809
www.crisiddha.tn.nic.in, Email: crisiddha@gmail.com

06.06.2016

Name of the student: Dr. P. Muthuselvi, III Year MD Student,
Department of Maruthuvam, National Institute of Siddha, Sanatorium, Chennai-600 047.

PHYSICO-CHEMICAL ANALYSIS OF MANTHARAKASA LEHIYAM

S.No	Parameter		Mean
1.	Loss on Drying at 105°C	:	17.58 %
2.	Total ash	:	3.233 %
3.	Water soluble Ash	:	1.996 %
4.	Acid insoluble Ash	:	0.054 %
5.	Water soluble extractives	:	47.482 %
6.	Alcohol soluble extractives	:	57.550 %
7.	Fat content	:	4.350 %
8.	Total solid content	:	82.42 %
9.	pH	:	6.7
10.	Reducing Sugar	:	7.83 %
11.	Total Sugar	:	47.81 %
12.	HPTLC	:	Enclosed

(R. Shakila)
Research Officer (Chemistry)

(Dr. P. Sathiyarajeswaran)
Assistant Director (Scientist 2) I/c

Dr. P. SATHIYARAJESWARAN
Assistant Director (Scientist-2) 1/C
Siddha Central Research Institute (CCRS)
Min. of AYUSH, Govt. Of India
Arumbakkam, Chennai-600 106.

BIBLIOGRAPHY

BIBLOGRAPHY

1. Yugi vaithiya chinthamani, 2nd edition
2. Munaiver.V.R.Madhavan - Agathiyar vaitrhiya kaviyam 1500
3. K.N.Kuppusamy mudhaliyar - Siddha maruthuvam, 6th edition
4. Dr.M.Shunmugavelu H.P.I.M - Noi nadal noimudhalnadal 1& 2 volume, 3rd edition
5. K.S.Uththamarayan - Siddha maruthuvanga churukkam 3rd edition
6. Dr.K.Durairajan.H.P.I.M - Noi illa neri, 3rd edition
7. S.P.Ramachandren - Uyir kakkum siddha maruthuvam@ Athma ratkchamirtham, 1st edition
8. S.P.Ramachandren - Anubava vaithiya deva ragasiyum
9. Deva Aasirvaatham SamuelM.D(S) - Marunthu sei iyalum kalaiyum
10. K.S.Murugesa mudhaliyar - Gunapadam mooligai vaguppu, 7th edition
11. Dr.R.Thiyagarajan - Gunapadam thathu jeeva vaguppu, 4th edition
12. A.P. Selvarajan. RIMP, RHMP - Tamilaga Siddha Vaitheya Gurugulam
13. K.S.Uththamarayan - Thotrakirama Aaraichiyum siddha maruthuva Varalarum, 4th edition
14. C.Kannusamy pillai - Pathartha guna vilakam
15. N.Kandaswamy pillai - History of siddha medicine, 2nd edition
16. Tamil & English dictionary Vol IV - T.V. Sambasivam pillai
17. Mr.Irfan Ali Khan & Mr.Atiya khanum - Herbal medicine for human diseases vol-III
18. Mr.T.Pullaiah - Encyclopedia of world Medicinal plants vol-IV
19. Dr.S.Somasundram - Medicinal Botany
20. K.M.Nadkarni - Indian Materia medica vol 1&2

21. A.K.Gupta, Neeraj Tandon - Quality standards of Indian medical plants, Vol 3, First edition
22. Indian herbal pharmacopoeia-Revised new edition-2002, Indian Drug Manufacturers association, Mumbai.
23. Kirtikar, K.R & Basu, B.D. - Indian medicinal plants.Vol II
24. Kasper, Braunwald, Fauci, Hauser, Longo, Jameson - Principles of Internal medicine 16th edition
25. Dr.K.Sembulingam, Dr.P.Sembulingam - Essentials of Medical Physiology 4th edition
26. Dr.B.D.Chaurasia - Human antomy Vol 1, 4th edition
27. Dr.D.Behera - Textbook of Pulmonary medicine, 2nd edition
28. KP.Kushwa, Rita Gupta, Arun Gupta, Harbens Bansal - Asthma care and management, 21st edition
29. Davidson's Principles and practice of medicine, 22nd edition
30. Hutchison's clinical methods, 1st edition
31. www.Pubmed.com
32. http://en.wikipedia.org/wiki/asthma